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GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XIX. **JAN. 1, 1891.** **No. 1.**

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STRAY STRAWS.

EDITED BY DR. C. C. MILLER.

What a winter!

Bees flying a little Dec. 15.

What splendid kindling old wood separators make!

SUB-VENTILATORS are still in high favor with Mrs. Harrison.

I don't know how Rev. W. F. Clarke can make such good poetry about what he doesn't know.

American Bee Journal for 1891 is to have 1664 pages. How does friend Newman expect us to bind it?

Winter days have come,
Bees no longer hum;
They hibernate some.

If 3 lbs. of honey make 1 lb. of wax, wouldn't it be better to raise wax at 20 cts. a pound than to raise 5-cent honey?

A writer in the *British Bee Journal*, who has "both straw skeps and movable-frame hives, likes the latter better."

CLOSED-END FRAMES, according to W. Camm, in *The Guide*, do not have the combs fastened as well to the end-bars as open-end frames.

Heddon says that one of the reasons (and he puts the reason in capitals) that he sold his honey so quickly, was, that he *kept the prices down.*

I have four colonies of bees outdoors—the first in perhaps 20 years. "Why haven't I tried it before?" Well, I don't know whether it was more prejudice or laziness.

Rev. W. F. Clarke and Bro. Newman are having quite a controversy as to whether Canadians are Americans. When they agree on it, we'll know for sure just how it is.

HILL AND HUTCHINSON are down on the corners of the Dovetailed hive. Is there any law to prevent the two H.'s from making the same hive with an improved corner, like a common store-box?

COVER PICTURE.—That of the *Review*. It's ahead—neat, appropriate, beautiful. The only chance for any one else to beat Hutchinson is to copy his cover, and then sew it with colored instead of white thread.

"LOCK-JOINTED HIVE-CORNERS" is the heading to an item in the *Review* about the "so-called Dovetailed hive." Say, W. Z., why didn't you, years ago, lift up your voice against the "so-called dovetailed" section?

Hasty thinks 3 lbs. or less of honey will make a pound of wax; Simmins, less than 6½ lbs.; tradition, 20. Don't we stick to that 20 from mere habit? I do. Has there been a single experiment of late years to confirm it?

Whether your cellar needs ventilation for the bees or not, if your wife and children are worth keeping you will do well to see that the air in your cellar is sweet and pure at all times. Pure air won't *hurt* the bees, at any rate.

JAPAN CLOVER is spoken of in the *American Bee Journal* as a kind that flourishes well, at least in the South, doing well even on the poorest, stoniest land. It is highly praised as a plant for grazing, but nothing is said of its value for honey.

UPWARD VENTILATION, according to the *British Bee Journal*, is not desirable. It says, "Personally we prefer to keep the top close—just as the bees will make it if left to themselves—and to ventilate from the bottom. We have come round to this view after trial of both methods."

BLACK BEES the *British Bee Journal* decidedly prefers to the Italian, for profit and for all-round superiority. It says, "After several years' trial, our most experienced and successful bee-keepers have generally discarded Italian (or Ligurian) bees in favor of the old black or brown variety." How's that?

A British writer recommends having extracting-combs 2 inches from center to center, to prevent the queen going up into them. I think there is something in it. With 2-inch sections I never had much trouble with the queen going up, even when I used neither separator nor honey-board.

Joshua Bull, in the *American Bee Journal*, thinks, "when we have frequent storms, with heavy discharges of electricity in the form of lightning and thunder, the honey-flow is apt to be light; but when there is less thunder and lightning, there is more honey in the flowers." Well, what can you do about it?

Isn't contraction beginning to expand a little? Dr. Tinker says, in the *Canadian Bee Journal*, that contraction "is now admitted by all the ablest producers of comb honey in this country to be necessary to the best results." But he has decided, that "it does not pay to carry the contraction too far." He thinks "the equivalent of 6 L. brood-combs is the best."

And now it's Hasty I am mad at. I like Hasty, he's always so fresh and bright. But in the *Review* he hints that the venerable falsehood, that it takes twenty pounds of honey to make one pound of comb, is kept alive by the bee-journals in the interest of the foundation business. Hasty, did you ever know any of them to suppress any evidence that 3 lbs. of honey make a pound of wax? That hint wasn't nice. It was hasty—almost with the top knocked off the h.

Foul brood in Canada is not likely to be kept hidden. Any person, whether bee-keeper or not, who knows of a case and does not report it to the proper authority, "shall, on summary conviction before a justice of the peace, be liable to a fine of $5 and costs." That's right. It's different here. At a bee-convention a public official announced the existence of a large number of cases of foul brood; and when I pressed for the names, he said he would not tell, *because the parties did not want it known!*

Artificial increase is practiced by E. France to prevent swarming. He runs outapiaries for extracted honey, with no one to watch for swarms. He visits them every week to ten days. When they get so strong that there is danger of swarming in a good honey-flow, he takes from each such colony about two combs of honey and brood—mostly brood—taking bees with it but no queen, and puts in place empty combs or foundation starters. Thus from 3 to 6 colonies he gets enough to fill an empty hive, which in a few days makes a strong working colony. Next visit he cuts out queen-cells.

AMOUNT OF STORES FOR WINTER, ETC.

G. M. DOOLITTLE GIVES US SOME FACTS GLEANED FROM YEARS OF EXPERIENCE.

The following from a correspondent is just at hand: "How much food does each colony of bees require, in order to winter successfully? I find Mr. Hasty telling in the *Review* of starting doubled-up colonies with as little as five or six pounds, while some of the 'doctors' say that fifty pounds in a hive is better than any thing less. Which am I to believe? and what am I to understand by this great difference of opinion?"

Well, these things are often very confusing to a beginner, and I do not wonder at it; but, as a rule, the writer of an article in any of our periodicals can not well go into all of the minutiæ connected with his or her subject, because it would make too long an article for one number or issue of such periodical; and continued "stories" do not seem to be just the thing for a bee-paper. That none need be thus confused, my advice to *all beginners* would be, that they purchase one or more of our valuable books on bee culture, and in these they will find the most if not all they want to know about spoken of at length, and the reasons for the writers' opinion given, so that they can form an opinion at once whether the writers' views are correct or not. With this prelude I will proceed to answer as best I can.

While I do not think that 50 lbs. of honey should be required to winter a colony of bees, under any condition, yet the amount required depends very largely on the location, whether the bees are wintered in the cellar or on the summer stand, and upon what is meant by "winter." It will be plain to all, that more stores would be required to winter a colony where winter held its sway from the middle of October to the middle of April, as it does in some of our most extreme northern localities where bees are kept, than would be required in some of the more southern localities where winter does not last over two months.

If I understood Mr. Hasty aright in the *Review*, his idea of so little honey was to give only enough honey during the winter months *proper* to supply the "fuel" required to keep the colonies warm, and not to supply them food for brood-rearing in the spring. He argued that this scanty supply of food tends to make the bees retrench, and so they would use this supply *only* for fuel, and thus early brood-rearing, which is considered by many to be of no advantage, would be done away with, thus wintering our bees at little cost, and at the same time place them in a condition which is most conducive to their prosperity. But Bro. H. did not calculate that the supply he gave them in the fall was to last them till honey was gotten from the fields in the spring, for he plainly told us that he had a supply reserved, to fall back on when the supply given in the fall gave out.

The only thing I see against this "short-store" plan, as given by Bro. H., is, that in our locality the bees might run out of supplies at a time when it would be impossible, on account of protracted cold, to supply their wants, thus increasing the probability of loss to those who are a little inclined to be careless with their pets. Years, ago, when I first began to keep bees, I thought that each colony wintered on their summer stand should have at least 30 lbs. of honey to carry them from the first of October to the first of May; but after repeated trials I am fully satisfied that 20 lbs. is just as good as 30, and I find that not one colony in 25 will consume 15 lbs. during this time. The only reason for giving the 20 lbs. instead of 15, lies in the fact that the bees will retrench when their stores are getting low, just as Bro. Hasty tells us; and if this retrenching comes when the bees ought to be rearing brood, then we are losing largely by not having honey enough in the hive to keep brood-rearing prospering as it should.

I claim that all colonies wintered on the summer stand should have at least ten pounds of honey in their hives the middle of April, in this locality, to give them the confidence they need to start out aright with for the season; for with this amount of stores they will not feel the need of retrenching, but will push brood-rearing on rapidly. If they can be wintered on 5 lbs. up to this time, so much the better; but, if at this time they do not have plenty of honey it should be supplied to them in some shape. For cellar wintering I allow 5 lbs. less honey than for outdoor wintering, finding that, as a rule, 1½ lbs. of stores per month is the average amount consumed by the bees while in the cellar. Now, where we feed our bees, no matter how done, I find that it can be done to better advantage in the spring than in the fall, for the bees will go to brood-rearing with renewed vigor where fed; and for this reason I would say, give the bees only enough to safely carry them through to May, then supply their wants by feeding the amount you would otherwise have given them in the fall. The amount which I think right in this locality, I have given above.

INTRODUCING QUEENS TO QUEENLESS COLONIES IN THE SPRING.

Another correspondent wishes to know whether he can successfully introduce a queen to a colony which has been wintered without one. He seems to fear that such a colony would establish laying workers during the winter season, and thus make the introduction of a queen a perilous undertaking. I do not know that I ever placed a colony in winter quarters, knowing that they were queenless, but I have several times had queenless colonies in the spring which I believed had been queenless nearly all winter, and had no especial trouble in getting them to accept a queen at that time. I can not say for certain, but I do not think that the bees would establish laying workers while in winter quarters; at least, I never knew of a laying worker, in this locality, earlier than the first of June. Can any of the readers of GLEANINGS give us any light on this subject? It would have much to do with our trying to winter over queenless colonies. G. M. DOOLITTLE.

Borodino, N. Y., Dec. 17, 1890.

[I heartily agree with you, friend D., in every thing you say, only you do not consider at all the strength of the colony. When we used to try to winter nuclei, say with a quart of bees or more, if we succeeded in getting them to pull through, they consumed, of course, but a small quantity of food; and if they dwindled down so there would be but a pint of bees in the spring to build up with, it took only a very small amount of stores for them to build up. I think I have wintered nuclei with not to exceed 5 lbs. of stores; and this took them clear up to the bloom of the soft maples; and at the same time I have had powerful colonies, say with four times as many bees as the nucleus mentioned, that would consume 20 lbs. It is true, however, that less stores will be needed in proportion for a powerful colony than for a weak one, especially during winter time. As the powerful colony will, however, start a tremendous sight of brood before the nucleus has commenced brood-rearing at all, they will need stores correspondingly. And the amount of brood reared, and the time when brood-rearing commences with a certain colony, has very much to do with the amount of stores needed. We therefore finally arrived at the conclusion of many of our veterans, that each *full* colony should have from 20 to 25 lbs. of stores, in order to be *absolutely* safe, providing they were not looked over in the spring especially to see how their stores were holding out. But with this large amount of stores, many will often have sealed stores left when work commences in the boxes; and this is an argument in favor of ten-frame hives instead of eight-frame. The two extra frames *may* contain surplus stores the year round, as a sort of reserve force to fall back on in case of drouth or famine, or excessive brood-rearing.

I can not remember that I have ever had any trouble in introducing a queen to a colony found queenless in the spring; and we, in such cases, turn them right loose, the bees often receiving them with a roar of applause. I do not know that I ever saw them "swing their hats," but they make a loud buzz with their wings, and the news passes from one to another very much as shouts of applause go through a crowd of human beings.]

WHITE SNAKEROOT (EUPATORIUM AGERATOIDES).

DOES IT CAUSE THE DISEASE CALLED "MILK-SICKNESS"?

Friend Root: — Prof. Cook pronounces the plant sent by Mr. Hastings (see p. 793) "the common boneset, or thoroughwort, sometimes called white snakeroot." Although I am not a botanist, I can tell the professor, that, although they may be ranked with the same family of plants, there is quite a difference. Boneset is a much larger, stronger-growing plant than snakeroot; and the leaves that spring from the body of the main stalk entirely encircle it, so that they connect with one another, and the stalk has the appearance of growing *through* the blades, while the snakeroot is entirely destitute of the band that encircles the other. The seed-blossoms on the top of the plants resemble each other very much. There is a mistake somewhere. Mr. Hastings may have sent thoroughwort instead of snakeroot; and if he did, the professor made a mistake.

In regard to the "trembles" in cattle, and milk-sickness among those who use the milk of cows that eat it, I have had a pretty sad experience, but not as bad as some of my neighbors. When I came to Ohio in 1844 I heard that there was a section of country on the road from Medina to Seville where the settlers had been afflicted with a strange malady that the doctors could give no name to, and several deaths had occurred the year before; but the general opinion was that it was somehow caused by the water. I took up a new farm on the road one mile west of the main road to Seville, but my neighbors' woods and mine joined, and then everybody's cattle ran in the woods; but it was so much trouble to hunt mine up that I cut a "slash row" around *my* lot. Well, we would hear of sickness *east* of us; but with the exception of a little ague, one year, we enjoyed good health for ten years; but the year 1855 was a dry one in the latter part of the summer, and the water failed on my farm. I let my cattle into the woods for water, and, of course, among the snakeroot. Soon a sucking colt died; then my oldest boy was taken ill, and then there was a general bad feeling, among us all; but I did not send for a doctor, for I dreaded *them* more than any disease. I was then 46 years old, and my wife 41; but neither of us had ever taken a dose of medicine of any kind *from* a *doctor*. A week passed; wife sick; yearling steer died with trembles; shut the cattle out of the woods, and cut corn for them. Stephen, my boy, had been seven days without any thing passing his bowels—could eat nothing, drank but little, and generally threw that up.

I would say here that we had abandoned the use of milk and any of its products. Stephen said that he wanted some *ice*. I took the old jumper from the stable, mounted her, and took a pail and went to the village and got a good big "hunk," and cut it up so he could get the pieces into his mouth, and he "crunched" it up and swallowed it before it had a chance to melt. After a short spell he commenced to vomit, and threw up not only the water but the contents of a very foul stomach; and from that hour he began to mend. Suffice it to say, that, of the seven of us in the family, we were all sick but the six-year-old boy (the youngest), and he had generally eaten much more *maple sugar* than he had *butter*. I was called a stubborn, stingy, ignorant, wicked man because I would not have a doctor; but we all lived, while several of my neighbors died, with the doctors all around them.

I have written these lines so that any one sick with that complaint may have the benefit of my experience. I consider Dr. Tyrrell's remarks on page 779 of GLEANINGS to be like "apples of gold in pictures of silver" to any one who will heed them. JESSE HARRINGTON.

Medina, Ohio, Nov. 25.

[Friend H., do not be too severe on Prof. Cook. We find, by the botanies, that the thoroughwort, or boneset family, includes a very large number of varieties; and although the white snakeroot looks very different indeed from what we in our locality call boneset, or thoroughwort, it is still one of the species included under that name. Years ago I sent a sample of the plant to Samuel Wagner, and my sample was taken from the very woods you allude to in your article. He at once pronounced it white snakeroot, or *Eupatorium ageratoides*. The piece of woods has always been of great interest to me, from the fact that, as cattle and all other stock have been for so many years excluded, it is becoming a dense thicket of trees, plants, and shrubs—quite a contrast, in fact, to most of the timber land throughout Ohio. From the fact that stock has been for so many years excluded from the woodlands where this plant seems to thrive, I am inclined to think that it, or some other one, has something to do with milk-sickness. Years ago I thought it richly deserved a place in our greenhouses on account of the beauty of its snow-white mass of bloom, and I remember well when I first found it in a greenhouse. Now almost every florist has one or more varieties of *Eupatorium* with their downy tassel-shaped flowers of snowy whiteness. Recently a tinted variety is found in some collections. The little flowers and the mass of bloom have become developed by greenhouse culture to much greater size and magnificence than they are in their native woods. Bees get an amber-colored honey, of a peculiar rich flavor, some seasons, from this plant. Perhaps I should mention that thoroughwort has a strong, sweetish perfume—sometimes so great as to be almost sickening, while the snakeroot-blossom has no trace of this distinctive perfume at all. It has, however, a delicate sweet perfume of its own, but not at all like the thoroughwort.]

BEE-KEEPING FOR WOMEN.

A FEW THINGS THAT HELP MATERIALLY TO LIGHTEN THEIR LABORS.

Under favoring circumstances I can put in a long day's work with bees—often, in the busy season, getting up at four o'clock; and, when at work in the out-apiaries, not reaching home until nine o'clock in the evening. But I feel pretty sure that, under some circumstances, it would be very little work I could do with bees. Take, for instance, the matter of shade. If I were obliged to work in some apiaries where they arrange their hives in an open plat with only shade-boards or vines, and the operator is obliged to take the full rays of the hot sun, I am afraid it would be a very short time that I could stand it. In our apiaries the hives are so arranged that they are in the shade at least part of the day; and in planning our work for the day we always, so far as is possible, see to it that those hives which will be in the sun in the afternoon are worked in the forenoon, and *vice versa*. Sometimes we don't plan just right; then Dr. Miller takes the sun. I suppose men are better able to stand the heat than women; but I can hardly see why it is necessary for either to do so. What objection is there to trees, providing the shade is not too dense? They help the bees to mark their location; and, oh they are such a comfort to the bee-keeper if he keeps them trimmed properly!

Last spring we were very busy, and neglected to trim the branches in the Wilson apiary. Whenever I heard an ejaculatory "oh!" I knew what the matter was, and would look up to see Dr. Miller's hat jammed over his eyes, and both hands full. One day, after having been tried in that way a number of times, he stopped short with a remark something like this: "I'm going to trim these branches, even if I don't do another thing to-day." He did trim them and it didn't take so very long either, and they had been a big nuisance for some time. You see, I rather had the advantage of him, for I could pin my hat on firmly.

It's the little things that help to make our work hard or easy. I should hardly like to work with bees if I were obliged to do all the heavy lifting. But Dr. Miller kindly favors me in that direction—so much so that I remonstrate sometimes. He generally assures me that it is pure selfishness on his part, as he wants to get as much help from me as possible, and knows I can accomplish a good deal more if I don't overdo. Every lady bee-keeper will find a pair of rubber boots and a good gossamer (one with sleeves if possible) a great help—in fact, almost a necessity. Showers sometimes come up when work is pressing, and you are obliged to keep on. I have in mind twice this last summer, when we worked in a pouring rain because we had a lot of queen-cells that must be attended to at once.

Again, you can not wait in the morning for the grass to dry off, and you will find your rubber boots a great convenience. Now, don't say, as I did, that they are entirely too heavy and warm, and that you know you never can wear them. Well, I *had* to, as Dr. Miller got me a pair and insisted on my trying them. I like them. So will you. EMMA WILSON.

Marengo, Ill., Dec. 15.

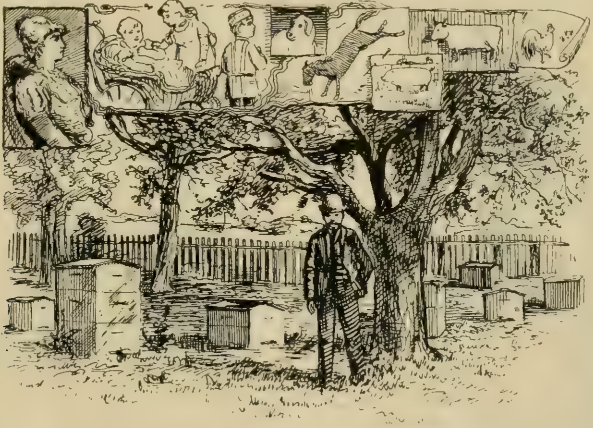
[Good shade in an apiary is indeed a luxury, even to a *man*, and to the poor bees, also, when not too dense. It is very hard to be obliged to work in the hot sun, over hives all day, without at least a little shade a part of the day. Shade-boards are inconvenient, as you say. About the best thing, I think, is small trees, or trees that do not have a very dense foliage. Large apple-trees are rather bad; small ones are just right. Grapevines are hardly the thing, in my estimation. They require such constant trimming, and that during the busiest part of the time in the apiary, that either one or the other of two things happens—they are either neglected, or they stick out in the way unless attended to so that they take valuable time away from the bees. A small boy can do it, it is true; but somehow or other it does not get done at our home apiary. I never had my hat crammed down over my eyes as you say Dr. Miller has had, but I have had an ugly shoot from a vine that had been cut off, punch me in the face; and I have felt more than once as if I wanted to tear the whole thing up, root and branch. This matter of shade is one of the important questions, and I hope our correspondents will discuss it.

You will remember, three or four years ago I recommended light rubber boots to work with in the apiary, and I am glad you have spoken of their convenience to *women*. Very often, during the morning, the grass will be soaking wet; and if your yards are like ours, somehow or other the grass will become long, so as to make common rubbers an insufficient protection. After I had recommended light rubber boots we had quite a number of orders for them. I would say to our good friends, that we sell a good many things; but boots are among the articles that we do not wish to handle just yet. The kind I mentioned can be obtained at any of the stores.] E. R.

RAMBLER IN PROVIDENCE.

HOFFMAN FRAMES AND BEE-SPACES; NO BURR-COMBS.

We performed the duties required of us on the apiarian exhibit; and not seeing much anger in the faces of the exhibitors, we concluded it was safe for us to stop a few days in Rhode Island. We learned that Mr. Cushman was doing a good work at the Experiment Station, and it was through the unremitting labors of Mr. Miller and Prof. Cushman that the premium list was extended and the exhibit enlarged; and if the people of Rhode Island remain in ignorance upon bee-keeping and the methods of honey-production, it will not be the fault of the bee-keepers. The exhibit from the Experiment Station was intended to be instructive; and at almost any time of day we found Mr. Cushman patiently answering questions and correcting erroneous ideas.



ARTHUR C. MILLER'S HOME AND HOBBIES.

Several of the exhibitors acknowledged themselves to be merely amateurs, and had taken it up for its diverting effect. Mr. Thos. M. Pierce, of Wickford, lost his health by too close application to business, and had gained a very good degree of vigor among the bees and flowers. Mr. Pierce and family adopted the novel plan of eating as much honey as they could, and giving away the rest. One youth, with a taste for sweetness, got away with over 40 lbs. It proved a sure way of using up the surplus; but when he changed the order of things and put the usual price on his goods there was a sort of reaction. The recipients of past favors were no better customers than outside parties.

At the close of the day's labors we were whisked off by rail to Barrington, and the residence of Arthur C. Miller, several miles out of Providence. Mr. Miller's time at bee-management is mostly in the morning and evening. The rest of his time is devoted to banking business in the city. It is a delightful run out of Providence to Barrington. We follow down Narragansett Bay; and the many beautiful cottages along the shore and upon the islands reminded us strongly of our own lovely Lake George. Here, however, instead of fishing for pickerel, larger game was sought after. Only swordfish, sharks, and kindred fish, will satisfy the ambitious fisherman of Rhode Island.

Stakes protruding from the water all along down the bay were pointed out as the boundary lines between the oyster-beds, from which the Rhode Islander derives a large revenue. When we left the rails, and rolled peacefully along in a chaise behind the pet horse of the family, we remarked about the hardness and pearly whiteness of the roads, and were informed that they were made so by the liberal application of oyster-shells; and when informed that there were miles and miles of such roads, and thousands of loads of shells were used for other purposes, we began to realize the magnitude of the oyster-business. As you may suppose, these beautiful roads are a veritable paradise for the bicyclist, and we found Mr. Miller owned such a pet, and was expert in its use.

Mr. Miller has a commodious and pleasant home, with a wife and three little ones to welcome him after the cares and fatigues of the day. In the rear of the house is a large yard and kennel for the pet blood-hound; and beyond, the poultry-house with the pet rooster. A cow has been added recently to give pure lacteal food for the little ones, and to give Mr. Miller necessary recreation in the early morn. A cow is always an object-lesson of patience, and there is not a family in the land that does not venerate the family cow. The manipulator of the lacteal glands is also taught the virtues of patience, especially when flies abound.

A few years ago Mr. Miller had a fine apiary; but sickness necessitated a change of climate, and he spent the winter in California, leaving his bees in the hands of inexperience. A severe loss followed, and the apiary has to be built up again under the master's hand. This will soon be accomplished, if future seasons equal the present. With three full colonies and two nuclei in the spring, an increase to ten has been made, with abundant winter and spring stores, and 385 lbs. of surplus, both comb and extracted; and, under careful management, the honey is of a gilt-edged order, and commands a good price. Rhode Island bee-keepers, as far as we observed, sell all their honey in the home market, and we saw no piles of special shipping-crates in their apiaries.

The Hoffman frame is used in this apiary, and the spacing of frames, and from frame to honey-board or crate, is large enough to give the bees easy access, and no larger—we should say a scant $\frac{5}{16}$; and when the crates are removed, not a brace-comb is visible. Italians and Carniolans are in the apiary; but Mr. Miller favors the Carniolans, and often laments the loss of a valuable strain of them when he was absent. He has not replaced them, but hopes to find ere long a Carniolan with all the desirable qualities.

As your readers will remember, Mr. Miller is the inventor of the best foundation-fastener yet devised. We here saw its practical working for the first time, and foundation can be securely stuck to the sections with rapidity, leaving no thick rib next to the section. The apiary is comfortably located under the spreading branches of apple-trees of the Roger Williams variety. We did the town of Barrington, and found many elegant residences. City people live out here, and spend their surplus dollars in adorning their grounds, and they are good to look upon; but the greatest comfort a Rhode Islander can attain to is a clam-bake; and every cottage and club-house along shore is provided with the necessary appliances to produce the effect. It was a little late in the season for bakes, but we heard so much about them that we feel quite well posted on clams.

This is a Clam

A CLAM BEE-KEEPER OF THE "BRIMSTONE" DAYS.

The clam is a very conservative animal, and is seldom influenced by outside considerations. The clam is considered selfish, as he shuts his door in the face of all intruders, and even his aunts, his uncles, and his cousins, are served the same way. The clam will not open his doors to the interviewer, and all he wants is to be let alone, to pursue the even tenor of his way just as his grand-dad did. If Mrs. Clam wants to put on an airy back kitchen, or a front bay window to their old shell, Mr. Clam gets in a rage, and closes his front doors closer than ever. Scientists do not agree as to whether the clam is a biped or a quadruped. Usually just after Mrs. Clam has given him an extra good dinner, he has a faint resemblance to a biped: at all other times he has all the qualities of a quadruped. "Don't be a clam," is the advice of the RAMBLER.

[I have a great respect for a man who has hobbies, particularly if they are of a kind that makes the man love home and family more. A man who loves pets, and is kind to them, will necessarily be kind to his family. What you say regarding the Hoffman frames, and their freedom from burr-combs, is literally true. I saw the same state of affairs in more than one apiary in the East; and I confidently expect it in our own yards at an early date.] E. R.

THE DOVETAILED CHAFF HIVE.

OBJECTIONS TO THE OUTSIDE WINTER PROTECTING-CASE.

There are decided objections to such an outside case as is suggested by Ernest on page 698. If made the size mentioned, there will be too little space for packing. There will be some difficulty, I think, in adjusting the cushions so that one can always feel positive that there are no unoccupied spaces left for the free circulation of air.

The adjusting of cushions and case will require a skilled workman, and will consume more time than would be required to tuck up the same number of colonies in regular chaff hives.

There are too many pieces that will need storing for a part of the year, causing too much carrying back and forth between the stands and the honey-house. A little extra cost of a hive, when used for a term of years, is a small thing; but a little extra work, often repeated, is of some importance; and the longer the hive is used, the smaller is the importance of the cost and the greater the importance of the time consumed to manipulate it.

If it were possible, there should be no part of the hive requiring storage at any time, excepting the supers. These we want stored during the winter, so that they may be filled with sections for the following season.

It is true, that such a temporary winter case can be used by those who already have their bees in the Dovetailed hive. This is some advantage, but not as great as at first appears; for if we adopt an eight-frame chaff hive, the Dovetailed hives thus relieved from service will not be lost, as, with such a hive, we shall need a number of just such bodies for summer use, with which to form nuclei, to hive swarms, and to form second stories for extracting, if such should be needed. If there were a greater number than would be required for these purposes, they could easily be ripped in two, and thus be converted into supers.

Another advantage of such a case is, that it could be used early in the honey season to protect the supers from cold. Later, as the hot weather comes on, they might be converted into quite efficient shade-boards by removing the cushions. For this purpose they would require to be a little larger than suggested—large enough, in fact, to slip over the Dovetailed cover.

The advantage of cheapness, which Ernest urges, I am not willing to admit. His statement of the cost reminds me of a woman of my acquaintance, who regularly, every Monday morning, says to her little boy, "Now, Johnny, mother washes to-day, so you must bring a pail of water before going to play." Johnny willingly brings the stated amount, when his mother says, "Now another." After that has been brought, "Now another;" then, "Now another:" then, "Now another;" then, "Now just one more." It is fortunate that the mother always stops at the sixth pail; for about that time there comes a look on Johnny's face that leads me to think there might be a small rebellion were she to call for the seventh. To keep us good-natured, tell us right at the start how much this 35-cent chaff hive will cost, when you have figured in all that will be required to make it a complete one-story chaff hive. Let us see. There will be one dovetailed body; one bottom-board; one piece of duck to cover the frames; one cushion to cover the duck, and one long cushion, over five feet, to surround the dovetailed body.

If, after thoroughly discussing the matter, the committee find sufficient advantages to overbalance the disadvantages, why not compromise the matter a little and construct it so that it can be used either in the way mentioned, or converted into the permanent outside shell of a one-story chaff hive? Make it of ⅜-inch lumber, dovetailed at the corners, as proposed, but somewhat larger, so that it will take thicker cushions. Instead of a complete cover, put on a rim-piece somewhat similar to those used on the other chaff hives. When the rim-pieces are in place, the shoulder should be just like the upper edge of a dovetailed body—flat—⅛ inch wide on the side, and ½ inch on the ends, and should stand sufficiently above the rest of the rim to admit of the use of the regular dovetailed cover. To use as a removable winter protection, adjust the case and side cushions, just as you would the one proposed by Ernest. Now you have access to the top, and can tuck in the top cushion so that you are positive every thing is snug. Then just slide on the regular hive-cover, and make it useful winter as well as summer. You may not wish to examine your bees at all from the time they are prepared for winter until the next season; but it is worth something to know that you can do so if you wish, without tearing your hive all apart.

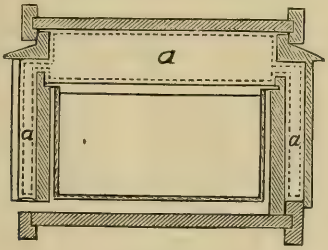


FIG. 1.

To make a chaff hive with permanent packing, there will be needed an inside shell made of ⅜-inch lumber, and dovetailed at the corners, and bottom-boards similar to those used in the other chaff hives, if it is thought advisable to have packing under the brood-nest.

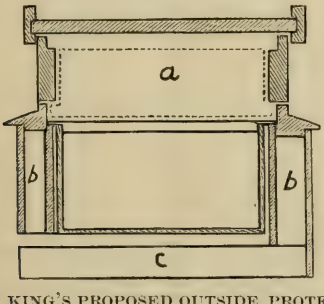


FIG. 2. KING'S PROPOSED OUTSIDE PROTECTING-CASE FOR THE DOVETAILED HIVE.

Since it has been decided to use such a large entrance, winter as well as summer, what is the use of extra protection at the bottom? Why not use only one bottom-board, leaving simply a dead-air space beneath?

Figure 1 shows a longitudinal section of a Dovetailed hive, with the protection and cushions, *a*, *a*, *a*, in place.

Figure 2 shows the case made into a chaff hive, in which *a* is the chaff cushion; *b*, *b*, chaff packing, and *c* a dead-air space.

Marysville, O., Dec. 15. W. A. KING.

[Criticisms are always in order, friend King, and I am free to acknowledge that you make some good points. Let us consider some of them *seriatim*. Allowing me to be the judge (for I have tried them), the adjusting of the outside cases, as you suppose, will not take nearly as much time as the same number of colonies in regular chaff hives, and there is going to be, I think, nothing to lug back and forth. These outside cases will be needed in summer for comb honey, as a protection from the hot sun. Elwood, with his thousand colonies, uses just such an outside case for shade, and he did not consider it a superfluous affair, if I remember correctly. Of course, the cushions would have to be put away; but then, we have to do that with our regular chaff hives. We can not afford to have great lumbering cushions on the hives during the entire summer; and in the production of honey they must necessarily be removed to make room for the supers. You say, a little extra cost of the hive, when used for a number of years, is a small thing. Very true; but the smaller this extra cost, the smaller this thing becomes. A regular chaff hive is not adapted for moving, but a single-walled hive is. Toward winter the outside cases can be hauled to the yard and set over the hives.

The committee had already in mind such an outside protecting-case as you outline in your diagram above; and there is no getting around it, there are some good things about it. But such a case would assuredly have to be stored away in the summer, and, besides, it could not be made to answer for shade. It would not do to leave it on during summer, because that would destroy the bee-space; that is, the space *a*, in Fig. 1 above, would be anywhere from two to three inches—hardly enough to allow room for a super, and too much room without a thing in which the bees can store honey. It is true, in Fig. 2, that you can put on a super; but then, there is about a two-inch bee-space under it. For extracting, this can be remedied by using frames a little deeper. But you would then have two sizes of frames in the apiary, the one so near the depth of the other as to make it a nuisance. I do not see any practical way of making a water-table to be used in a regular hive, so that it will not destroy bee-spaces. Of the two arrangements, I think the outside protecting-case, such as I outlined in GLEANINGS some time ago, is much preferable. Reports now coming in show that it has already been in use, and is giving good satisfaction.] E. R.

MRS. AXTELL'S EXPERIENCE AT THE KEOKUK CONVENTION.

CONTINUED FROM LAST ISSUE.

I felt amply repaid for my trip to Keokuk, if for no other reason than to meet so many of our editors and bee-keepers themselves, and exchange the friendly greeting, some of whom I have known for many years, and been greatly benefited by reading their articles, but have never been permitted to meet before. Why, it would have almost paid me for going, just to hear Dr. Miller, who is the very embodiment of music, render his sacred and comic music. If any bee-keeper is troubled with indigestion, or the blues, let him attend these conventions and hear Dr. Miller render his side-splitting comic pieces (as Ernest calls them in GLEANINGS); and I miss my guess if he does not return home very much improved in health as well as spirits.

Among the supplies shown at the convention was a section foundation-fastener, which I purchased and brought home with me. I like it very much better than the Parker machine. It does its work much more accurately and more rapidly than any other process I have ever tried. I feel sure I can trust my help to put in starters with this fastener, which we never succeeded in having done accurately with other machines. This is Mr. Bittenbender's machine. I think he told me he had it patented, but I am sure no one will hesitate to expend 50 cents for so good a fastener when he has tried this. He is quite an enthusiast in his work. His wife was intending to come with him had not his little child got badly burned a day or so before.

QUITE A JOKE ON US.

The night after the convention closed, we thought to remain at the hotel where it would be quiet, rather than to travel on the cars, as we were going over into Iowa; but about 10 o'clock, dancing and music began, and it was kept up until about 2 o'clock in the morning. Doors banged every two minutes, it seemed to me, all night, and people kept up a continual tramp, tramp, by our door, until I thought sure I was in bedlam for once. We had just fallen asleep when the lady of the house called us at 4 o'clock to take the train west. As I passed along by farmhouses I kept on the watch for bee-hives, but saw none until we reached about the middle of the State, where we found one small apiary on the north side of a steep hill. Probably there were bees, but not in sight of the cars, until we reached Afton, and there we passed a beautiful little apiary of 50 hives. They looked real pretty, standing in straight rows, and hives so white and clean, on a side hill sloping toward the railroad track.

As our friends we went to visit lived in Afton, we found the owner of that apiary was Mr. W. R. Hunter. Mr. Axtell called on him and found him to be quite an enthusiastic bee-keeper. He had just invented a foot-power saw that Mr. Axtell said was ahead of any saw he had ever tried. With this saw he sat down. To work it he used both feet. He had applied for a patent upon it. He winters out of doors in double-walled hives, and seldom loses a colony if properly prepared for winter with good stores. His bees were all pure Italians except two or three hybrid colonies.

About a mile from Mr. Hunter lives Mr. Sype, who has about 50 or 60 colonies. They both reported a fair crop of honey from colonies that were in good condition in the spring. They both use a double-walled hive without chaff packing, which, he claims, is almost air-tight, or almost holds water on all four sides. The corners have tin strips tightly nailed on. He claims for them that they are almost a non-swarming hive, as the dead-air space keeps them cool, even in the hottest place; and just before they swarm he takes out the combs that have the most honey in, and removes the center combs full of brood to the two sides, and puts three or four empty frames with starters in, in the center, or uses empty brood-frames if he has them. With that treatment he said he seldom had a swarm; but he has not been in the bee-business many years, and it has now been several years since we have had many swarms; but let a heavy honey-flow come again, especially early in June or the last of May, and I believe he too would have a plenty of swarms.

If we can be prepared to care for swarms, and hive them so as to return them after the colony has lost its swarming fever (especially all colonies that are not very strong), I think it just as well to let swarm, as it seems to be nature's way; and a colony that has swarmed, and gets settled down to work, works with much energy and vim.

Our last shipment of honey to Chicago brought us 18 cents wholesale, and we are selling cut-out honey in new tin pans with glass shades over it, in Roseville groceries, at 18 cents, and take it in trade. MRS. L. C. AXTELL.

Roseville, Ill., Dec., 1890.

CANE SUGAR.

PROF. COOK TELLS US A GREAT DEAL ABOUT SUGAR OF ALL KINDS.

Since you ask me to state whether there is any difference between beet sugar and sugar made from cane, you must excuse me if I am quite scientific. I see no way to avoid it; but I promise to be as brief as possible, and to try hard to make all plain to all.

There are several tests of sugars: First, their chemical composition; 2, their reactions with various chemical reagents; 3, the way they rotate the polarized ray of light; and, lastly, their solubility and assimilability. Now, so far as we have any knowledge, the sugar from beets, from cane, from maple, and from the nectar of flowers, is precisely the same in all these respects. It is known as cane sugar, or sucrose. It has the following chemical composition: $C_{12}H_{22}O_{11}$. C stands for carbon, H for hydrogen, and O for oxygen. It will be seen that the H and the O are in proportion to form water, the symbol of which is H_2O. This is true of all the sugars and starch, as such substances are called carbo-hydrates. The same is true of lactose, or milk sugar. These sugars rotate the ray to the right, but do not decompose the copper salts. They are not as soluble, not as easily absorbed, nor as easily assimilated, as are other sugars. Thus we may believe that sugar from beets, from cane, and from maple, is identically the same. In the manufacture, beet sugar and sugar from cane are perfectly refined, or clarified, and so seem alike. Maple sugar is not so. The sugar is the same, but there are other substances present which modify the color and flavor. By the removal of these we should make maple sugar exactly like beet sugar. All water is precisely alike; but all *so-called* water is not so. Some is full of lime, some impregnated with iron, and some saturated with a mixture of saline substances; but these are foreign substances added. The water is always the same. The same is doubtless true of these cane sugars. As cane sugar will not act upon the copper salts, it must be reduced to glucose before it can be analyzed by the use of Febling's test. The bee does this with nectar in changing it to honey. We do the same with cane sugar when we eat it. Thus it seems very probable that honey is a safer sugar for one with feeble digestion than is our common cane sugar. Cane sugar is not so soluble, not so easily absorbed and assimilated, as is honey or other glucose sugars. We know this: for, if the same amount of cane and grape sugar be injected directly into the blood, at different times, it is found that but very little of the cane sugar will be used by the tissues, but most will be eliminated by the kidneys. Much more of the glucose will be appropriated. This proves that glucose is more assimilable, and explains why cane sugar must be digested before it passes to the blood. Liver sugar is like glucose in this respect. It is formed in the liver, and is probably just adapted for use or assimilation. The glucose, or grape sugar of the glucose-factories, is chemically the same—that is, all have this formula: $C_6 H_{12} O_6$. Yet I think this corn or starch glucose is not the same, else why do bees dislike it, even at its best, and why is it fatal as a winter food, when honey or digested cane sugar is perfectly wholesome? It might seem that the chemical composition would alone determine the character of such substances; but this is not the truth. Thus, fruit sugar, the most abundant sugar of honey, and dextrose, the sugar of starch, have the same chemical composition; yet one turns the polarized ray to the left, and the other to the right. All the glucose sugars are identical in chemical composition; yet, as we have seen, they are physiologically quite different. We see the same truth illustrated in starch, dextrine, and glycogen. They have the same chemical composition—$C_6 H_{10} O_5$; yet starch is insoluble in cold water, and gives a blue color with iodine; dextrine gives a brown, or purple color, with iodine, while glycogen, or liver starch, is soluble in cold water, and gives a brown color with iodine. While chemical composition is a sure test of inorganic compounds, it is not so with organic.

Thus we conclude, so far as we now know, that all cane sugar, of whatever origin, beets, cane, maple, or flowers, is the same, but that the glucoses, or grape sugars, though chemically alike, are not so. I think we may further add, that glucose, when of organic origin, like honey, liver sugar, and digested cane sugar, from any source, is easier of absorption, and a safer food than is starch, glucose, or cane sugar. While this last may not be positively proved, it is certainly a reasonable conclusion from the facts as explained above.

THE NATURE OF A SOLUTION.

One of the brightest bee-keepers of our country asks me if the centrifugal machines that are so effective in separating milk from cream might not be utilized in the separation of water from thin honey. Our friend, though an expert in all that pertains to practical apiculture, is evidently not informed as to the true nature of a solution. The reason that the centrifugal machine separates milk from cream is due wholly to the different specific gravity of the two. The same fact causes the lighter cream to rise to the top and leave the heavier milk below. In a solution the soluble substance is held by the water or other liquid, and all is liquid, and uniform in weight, except that the liquid is more than saturated—that is, it contains more of the substance than it can dissolve, and both will remain intimately combined indefinitely. The water or liquid will not rise to the top. For the same reason a centrifugal machine would be powerless to separate the liquid from the substance in solution. The sugar that settles at the bottom of the cup of coffee does so only because so much was added that it could not all be dissolved.

A liquid will hold only so much of any special substance in solution. If then the liquid is saturated, and we in any way reduce its quantity, we shall secure the substance previously held in solution. Boiling drives off a liquid as steam; hence by heat we thicken our honey or secure sugar from its solutions. By freezing we can also separate a liquid from the substance it holds in solution, as every boy who has worked in a maple-sugar bush well knows. Thus, to reduce our thin honey we have only to apply heat. If this latter is mild, we can thicken the honey just as well as it can be done by the bees in the hive. A. J. COOK.

Agricultural College, Mich., Dec. 15.

[Friend C., I am afraid you are getting in a good deal of chemistry for a good many of our readers. You have, however, brought out several valuable truths. First, we do not want maple sugar refined like beet and cane sugar, for then it would be worth no more. The maple aroma must be kept. Beet sugar and cane sugar are exactly alike because they are chemically pure sugar. Usually it costs a good deal of money to get any substance chemically pure. Even common water, when it is wanted chemically pure, is expensive. Since, however, the demand is so *great* for pure sugar, it is done on such a large scale by such expensive apparatus that the cost, after centuries of experiment, has become only very trifling, per pound. Water from wells and springs is never chemically pure, and seldom anywhere near it. Even rain water contains more or less foreign substances.

Since you have suggested it, I feel quite certain that *some kinds* of honey might be improved by the centrifugal machine. A good many of us have seen honey that was thin and watery on top, and thick and heavy at the bottom. We have used it, by drawing off from the bottom until it became too thin, and then evaporating what remained. Perhaps a centrifugal machine would not be of much advantage after all over gravity in the ordinary way.]

ABOUT GETTING OUT BEESWAX.

FRIEND FRANCE GIVES US SOME VALUABLE SUGGESTIONS IN WORKING WAX ON A LARGE SCALE.

For several years I have used a large iron kettle in which to melt up old combs, scraps of wax material, cappings, etc. But I have been very much dissatisfied with the looks of the wax. It was too dark in color. I studied over the matter a long while, to find out where the trouble was. I thought perhaps that I burned the wax, as the kettle was hung so the blaze from the fire came up all around the sides of it. The wax could easily be burned on the sides of the kettle above the water. I was always careful about having my fire small, and well under the kettle, to guard against burning on the sides. But, do the best I could, I think sometimes the wax got scorched some. But I found out that there was another reason why the wax was dark.

Last spring I thought I could spare some 300 lbs. of wax, and sold it to Dadant. He said to me, after he got the wax, that it could be a good deal nicer. Now, I did not like that kind of talk about my wax—not because it was not a fact, but because I did not know how to do any better; so I wrote back to Mr. Dadant for information how to go to work to make a first-class article of wax. I asked if a solar wax-extractor was what I wanted, etc. He wrote me that the solar wax-extractor was not what we wanted. He said it was too slow for the amount of work we had to do, but advised me to get a copper boiler made. He gave the dimensions of a boiler that he thought would be about right. It would cost, he said, six or eight dollars, and would last a lifetime. I went through our hardware stores to see what I could do. First, I bought a second-hand stove—a very large, flat-topped one, costing $6.00. Then I found two sheets of tin, very heavy, and sent off for copper to make the bottom. I had a boiler made, 26x24 inches, and 22 inches deep, with a good cover. It cost $13.00, and weighed, empty, over

40 lbs. Then I built me a shanty for a wax-room, and set the stove up in there, took off all the lids, set my boiler on, put in 6 pailfuls of water, heated it, and then began to pile in the combs to melt. My! how much the thing would hold! As the first melted, I put in more until the boiler was three-fourths full of water and wax. Then I took a dipper and dipped off the wax, about 30 lbs.; then as I had about all the wax out that I could dip off, I let the fire go out, and left it until the next day to cool off, when I found a crust on top of the water about 1½ inches thick that contained considerable wax. Below that there was a great amount of rubbish and dirty matter which I threw away. The top crust I put back into the boiler, to be melted with the next batch. The color of the wax was nice, a rich yellow.

One thing more I want to speak about. Mr. Dadant told me that it would be well to have a wire-cloth screen sunk into the boiler, over the old combs, to keep the impurities at the bottom of the boiler. As there are a great many light impurities that float with the wax, being nearly as light as the wax, these are the most difficult to get rid of, and I succeeded in doing away with them most readily by the use of this screen. All right; we shall have one for the next batch, and so we did. It worked well. The first time I used it the wax was nice. Then it was four or five days before I made another batch; and during that time my wire screen had got badly rusted. Not thinking of any thing wrong I used the screen as it was. But when I took off the wax I found it as dark as any that I had made in the iron kettle, all caused by the rust from that screen. So I did not use it again. I intend to get some copper-wire screens to use in place of the iron, as the screen is a big help.

Now, I find that iron rust will make wax dark—in fact, black—if there is enough rust. I find it pays to make nice wax. Mr. Dadant wrote me that he would like to get hold of my wax next time, if melted according to his directions. Well, after I had got through making wax for the season I wrote him that I had nearly 200 lbs. of very nice wax. I asked him how much he would give. He answered that he had a large stock on hand, and he did not wish to buy any more at present. I then sent the wax to A. I. Root, and asked him how the quality of the wax compared with the average. He wrote me, "Your wax was a good deal better than the average, and you see we have allowed you two cents a pound extra on this account." So you see it won't take long to pay for my boiler, in the extra price of wax. It pays to make a nice article. E. FRANCE.

Platteville, Wis., Dec. 6.

[We are greatly indebted to you, friend France. Although all you tell us is not exactly new, it helps us greatly in the arrangements for working on an old plan. We have discovered, as well as yourself, that iron rust is not a good thing for rendering wax. We have also found out that nothing in the shape of galvanized iron or zinc should be used about hot wax. It will turn the wax a peculiar dark green. Copper seems to be the only metal in common use that has no effect on hot wax. Tinware, after the coat has worn off, is almost as bad as the kettle, especially if it gets very hot. I fear you will find trouble in getting wire cloth made of copper wire. You can, however, get brass strainer wire cloth of almost any tinsmith, but it is pretty fine for your purpose, and rather expensive. Perforated copper would answer nicely. But wouldn't it pay you to put the residue under your wire cloth, in a press? You know a good many claim that they get an additional quantity of wax by applying pressure when the wax is hot. We are very glad to get information from anybody so well posted as the Dadants. Very likely it will pay bee-keepers with a number of out-apiaries to have a rig in some little shanty outdoors, for rendering wax. I am sure the women-folks will be ready to give us plenty of advice, and may be "three cheers" besides, when they see us take up our duds and move out of the kitchen, into the wax-house away off in the yard.]

MANUM ON A VISIT.

HE CALLS ON IRA BARBER.

Having promised myself the pleasure for several years of making Mr. Ira Barber, of De Kalb Junction, N. Y., a visit, as he is one of the most successful bee-keepers in the land, especially in wintering his bees in the cellar without loss, year after year, I have felt a desire to learn his method of wintering; and having received notice that a friend living a few miles from Mr. Barber was about to depart for the West, I thought it a good opportunity to "kill two birds with one stone;" therefore, on Nov. 8th I boarded the train; and after making my friend a few days' visit, on the 12th I landed at De Kalb Junction. Not having notified friend Barber on what day I would appear, of course he was not at the station waiting for me; but on inquiry I learned that he lived only two miles away; and on consulting a liveryman I found that $1.00 was his price to take me the two miles. The price was low enough; but I decided that I could save that much by going on foot, so I started; and in 40 minutes I was standing near friend Barber's hatchway, having just seen him and two other men go into the cellar with bees. As Mr. B. came out and looked at me a moment he exclaimed, "Hello, Manum! is that you?"

"I believe that is my name, Mr. Barber, even though I am some distance from home."

"Well, boys, this is Manum, the Vermont bee-keeper, and I guess we will do no more today. We have the bees about half in, and we can finish them some other time. I want to visit with Manum while he stays; and, by the way, how long *can* you stay?"

"I must return to-morrow, sure."

"Well, you are as bad as Ernest with your short visits. Did you learn that trick of him?"

"Now, Mr. B., don't compare me with Ernest. I am not editing a bee-journal nor manufacturing supplies. I am just simply a bee-keeper, and nothing more; and, besides, were I to remain here long I fear I should be homesick without any mountains to rest my eyes upon. Why! it looks strange here to me without a mountain in sight. Surely I would not dare to travel very far alone in this country without a good guide, as there are no mountains to serve as landmarks. Why! I should think your bees would get lost if they had to go far for honey. But, as I observed while coming from the station, you have clover so very plentiful here all around you, I don't suppose your bees are obliged to go out of sight of their hives at any time. Surely I never saw clover more plentiful than you have it here."

"Yes, Manum, we have plenty of clover here, white and alsike. Those large fields there across the way are all seeded with alsike; but this year there was no honey in it, hence I have had to feed my bees sugar to winter them. I finished feeding last night."

"What! feeding so late as this, and putting them right in the cellar? I have always thought bees should be fed early enough so they could cap over their stores."

"Well, that is the proper way, especially for outdoor wintering; but I have had no bad results from late feeding. Yet I would advise feeding a little earlier than this."

"Mr. Barber, how do you manage to feed with these single-walled Simplicity hives?"

"I feed with ten-quart milk-pans—here is one right here. There, you see I break up old comb into inch-square pieces for floats, and I put in what syrup the colony needs, and cover the syrup with the floats; then I raise up a hive, set the pan on the bottom-board—just at night—and set the hive over the pan, or, rather, the hive rests on the pan; and by the next morning the bees have taken up all the syrup; and by having pans enough I can feed pretty fast in that way. Now, Manum, my friend Charles Hallegas, who has about 100 colonies, wanted I should be sure to take you over to his place when you come; and as it is only six miles we have just about time to go and get back before dark, and I think you'd better take your camera along, as I think he will want a picture of his yard; so I will go and harness old Tom, and we will be off."

"I see you have stakes stuck down, with numbers on them, where you have removed the hives; why do you do that?"

"Those numbers correspond with the number of the hive that stood there. In the spring I set the same hive where it was this fall."

"Do you think that is necessary?"

"Yes, I do; for before I practiced it, and when I set out my bees they seemed to be lost for a day or two, there being much commotion in the yard; and some hives would get more than their share of bees, while now all is quiet after an hour or two."

"What are these machines with these great tin drays? They are something new to me."

"Well, Manum, this is where I feed in the spring. You see, I have these great boxes made with a small door at the side, where I put in a lamp, and these trays are set over to close the top, and I pour my sugar syrup into them. They hold about 10 gallons each. Then I put in these wooden plates, made by tacking together narrow strips in the form of a rack. My lamps keep the syrup warm, and the bees come here in swarms to take the feed."

"Well, but are you not feeding your neighbors' bees also, as well as bees in the woods?"

"Well, I presume so; but I find this the best way for me to feed in spring, as it stimulates breeding better than any other way of feeding that I have tried; but the feed should be very thin. Let us be off."

On the way to Mr. Hallegas' place, Mr. Barber says:

"There, Manum, you see all those fields are covered with clover; and how far should you say it is across that meadow there on the left?"

"Oh! I should say three-fourths of a mile."

"You are wild. It is all of a mile and a half, and this one on the right is all of one mile, so you see I have a large range near by."

"So I was right, Mr. Barber, when I said your bees must have plenty of forage within sight of their hives. Now, if I had such a location as this I could get rich in two years—two good seasons, I mean. How long have you kept bees, Mr. B.?"

"Since 1852. My brother and I started with four colonies in box hives; and I had since, at one time, 500 colonies, but now I have only 140."

"During these 38 years have you ever had as many poor seasons in succession as the past four or five years have been?"

"No, Manum, I never have. Two poor years running is the most; but this terrible setback does not discourage me in the least; and, don't let it discourage you, for there is surely a good time coming, and I feel very sure that next year will make us all happy. Why! just look at the growth clover has made this fall; see how rank it is; and, furthermore, next year is our basswood year. So, then, my advice to you is, be hopeful, and ready for a large honey crop."

"Well, Mr. Barber, your talk encourages me very much indeed. I had been of the same opinion; but to hear it from an old bee-keeper, one with such an extensive experience as you have had, is surely very pleasing."

"There, Manum, the next house is where Mr. Hallegas lives."

Approaching the house I saw two men standing in the yard, and I heard the older one ask, "Who is that with Barber?"

"Well, father, that is Manum that you have heard me speak of."

I jump from the carriage, and Mr. Hallegas takes me by the hand, and says:

"Well, Manum, when I met you at the convention at Albany I never expected to see you here; but I am very glad to greet you."

"You see, Mr. H., I am everywhere, like a poor season. Where are your bees?"

"Right out here, back of the house. Have you come prepared to make a picture?"

"Yes, sir, if you would like one."

"Yes, I should; but step into the honey-house here, and see my new clamp. There, what do you think of it?"

"It is a very good clamp, though quite similar to Crane's, Wright's, and several others, only yours is not complete. For me to use, I would either use a screw or wedge to hold the sections in place; and I should want a groove here and one there, and insert a tongue to rest the separators on. How many bees have you, and what are they?"

"I have 96 colonies, nearly all blacks; and I find the blacks do better in a poor season than the Italians—at least, mine do."

After a short but enjoyable visit we return where Mr. Barber serves up a fine supper. I will say here that he does his own housework, having buried his wife four years ago. He has done his own cooking since; and I assure you, Mr. Root, that the ladies are not plentiful who can outdo Mr. B. in the kitchen. The evening was spent in talking on various topics pertaining to bee-keeping, such as chaff hives, single hives, strips, and full sheets of foundation, as well as the much-talked-of thick top-bars and broad-end frames. Finally the subject of locating out-apiaries was brought up by Mr. B. asking:

"Manum, how far apart do you think out-apiaries should be located so they will not encroach on each other's territory? and do you have them all strung along in one direction, or do you locate them all around your home apiary?"

"Well, Mr. Barber, owing to the fact that there is a high range of mountains on the east of me I am obliged to locate my apiaries northwest and south; and now if you will get me a piece of paper I will make a pencil sketch of my apiaries and the surrounding country; then you can see for yourself how I am hedged in by hills and mountains."

"See here, Manum, did you know it is after 11 o'clock? It is time we were in bed. You can make your map in the morning while I cook our breakfast."

Bristol, Vt., Nov. 28. A. E. MANUM.

(To be continued.)

ERNEST'S NOTES OF TRAVEL.

OVER THE MOUNTAINS AGAIN.

I promised, some time ago, to give you a view of O. R. Coe's hotel and mountain surroundings at Windham. In response to this, you see he has loaned me an electrotype showing his place. The engraving hardly does justice to it. In fact, no effort of man can adequately represent, on paper, mountain scenery as it is. Windham is a very pretty mountain town, free from malaria, as a matter of course. At the time of our visit, one or two parties from Florida were stopping here to get the malaria out of their systems; and it was coming out, too, with a vengeance.

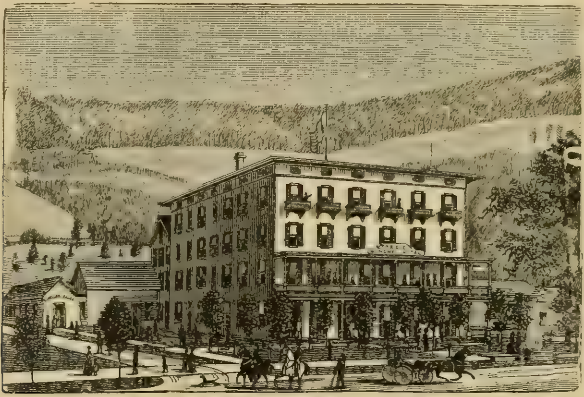
I should have been glad to spend a week at this delightful place; but I had to hurry away after I had been there a couple of days. I longed for the privilege of climbing up the mountain in the rear of the hotel. While I was there, several ladies, unbeknown to anybody, had made the climb, and, for a wonder, had got back safely without getting lost. It is hardly wise for strangers to attempt to go up the mountains unless accompanied by a guide, especially if there be no footpath or roadway. Indeed, our friend Coe, just the day before we arrived, had himself, after a residence of many years in this region, got lost on the mountains. He had taken a party of tourists up sightseeing; and after directing them to go up a familiar pathway, he himself concluded to take a short cut across through the woods. He lost his bearings, and for two or three hours he wandered about not knowing which way was north. He climbed a tall tree, looked over, and then learned where he was. On reaching the company they were much alarmed because of his long absence; and, not daring to attempt to go home without a guide, they began to feel themselves in a predicament indeed. May be they feared the bears.

THE MOUNTAIN BEARS.

Yes, there are bears on these mountains, but they are harmless, and will run from the *genus homo* before the latter can even recover his consternation. They are rarely seen except during winter, when they are kind enough to come down and carry off a sheep or a pig or two for the farmer—a kindness which the latter for some reason or other does not appreciate.

WHY BOX HIVES WILL WINTER BEES SOMETIMES WHEN FRAME HIVES WILL NOT.

Mr. Coe's honey-house and winter repository, as well as the apiary, are in the rear, just back of the buildings, and therefore they do not show in the picture. You will remember that this is the apiary where the bees die every winter, although box-hive bee-keepers all round about are successful in wintering. Mr. H. B. Harrington, otherwise known as "Neighbor H.," told me he thought he could solve the trouble. Said he, "In box hives you will notice that the combs always radiate from a common center, something like the spokes of a wheel; and there is a central passageway through the mass. In this opening the bees cluster and radiate from the center to the outer edges of the hives, as they run short of stores. In the movable-frame hive, the modern bee-keeper spoils all this; and in Mr. Coe's case the bees were obliged to pass up and over the combs, and consequently the bees in box hives would survive while those in his modern hives would die."



O. R. COE'S MOUNTAIN HOME.

This same matter has been brought up before, I believe. I am glad to give it here, as it suggests a very probable cause of Mr. Coe's winter troubles. I myself have never dissected box hives enough to know just how combs are built; but Mr. Coe can tell if this be true. My impression is that they are built just about as Mr. H. says.

A VISIT TO THE DADANTS.

Well, now, I am going to jump from the eastern part of York State clear over to the valley of the Mississippi, and I can do it on paper, I am happy to say, in a good deal less time than I can do it wheeling it across the real territory.

At the close of the convention at Keokuk, we were invited by the business men to ride over and visit the Dadants, ample conveyances being provided for the occasion. We crossed the immense railroad bridge at this point, something over—I don't dare tell now; and after crossing we reached the suburbs of Hamilton, a town of 1500 inhabitants. The peculiarity of it is, that it is a very long town. I think you can ride on one road for a couple of miles without getting out of its suburbs. After a very pleasant drive over beautiful roads we finally reached the home of the Dadants. At several points along the route I wished for the Kodak, which I did not have on this trip. With this little instrument I could have shown you a line extending perhaps a mile long (it might have been only half that), of teams carrying bee-keepers to the largest foundation-factory in the world.

On arriving at the Dadants' we hopped out and were freely invited to go anywhere and everywhere we pleased. Mr. C. P. Dadant told me that they had no "secrets;" and although I believe I represented their most formidable rival in a business way, he very freely and kindly showed me all their kinks of the trade; and before I forget it I want to say they have got the business down to a fine art and a most perfect system. Every operation or method seems to have been wrought out by careful study, both as to economy of time and labor — a condition in which employes and employers are interested.

When we went into the shops the workmen (a nice set of people they were) were turning out foundation in full blast. They are paid so much a day; and then, as an additional stimulus, they are given a bonus on the amount of foundation they turn out; that is, they work on the co-operative plan. This is so arranged that it is to the interest of the employes to turn out not only *quantity* but *quality*. Although the men worked rapidly, yet there was painstaking care exercised through it all. If there was a doubt as to whether a sheet would be suitable, it was cast into the waste, to be remelted and made anew; and I do not much wonder that every inch of the Dadants' foundation is equal to the sample sent out. I was surprised, however, to see that they should turn their mills by hand power, when steam is so much more expeditious. But then, for all that they manage to turn out *80 tons a year*.

The rooms were crowded with bee-keepers, to witness all the different operations. In one corner I noticed quite a circle of people; and peering over their shoulders I noticed that a couple of Mr. C. P. Dadant's little girls were what we call "papering" foundation; that is, they were putting a sheet of paper between the sheets of wax. I took out my Waterbury and began to time them, for their hands moved so rapidly it was a difficult matter to follow their movements. If my memory serves me rightly, they papered about forty sheets a minute; and if a big crowd had not been looking on, they might have averaged a sheet a second. These two do not do this during the busy rush, but they *know how*.

After we had wandered all through the different apartments we were invited to the honey-house, and there took lunch, after which quite a number of us could not refrain from going out and looking at those large Dadant hives. No doubt for their locality, and for extracted honey, these big hives are decidedly an advantage, and it would be hard to conclude otherwise, in view of the tons of honey obtained.

As it was beginning to be train time, the teams were commencing to load, and off the long train of conveyances started. It was my pleasure to be of the party with C. P. Dadant. Just before getting into the buggy, an old negro brought the horses and hitched them in. I could not help noting in particular the frank, honest look on his face. He seemed to know of the different bee-keepers, and Mr. Dadant introduced him to me as "John." He has been with them a good many years, and is one of those faithful, trusty employes whom it is a pleasure to have. After Dr. Miller and I got into the buggy, the venerable Charles Dadant (and it's a genuine pleasure to look into his genial face) came forward and pressed us hard to stay over; nothing would have furnished me more enjoyment personally; but as usual I had to make time.

He is indeed one of the veterans in the business; and now at an advanced age (73) he seems to retain all his bodily vigor and strength of mind. We finally bade our old friend good-by and started off for Keokuk, where we all took our several ways.

QUEEN-REARING.

DR. MILLER TELLS HIS EXPERIENCE WITH THE DOOLITTLE AND ALLEY METHODS.

I tried Doolittle's artificial cups for queen-cells last summer. I made perhaps 200 of them. I tried to follow his instructions to the very letter; but after leaving them in the care of the bees for 24 hours my spirits were saddened to find the bees had emptied every cup and cleaned it out bone dry. There were a few exceptions in which the grubs were kept a day or two, but only two that continued to maturity. These two were, I thought, the nicest I ever saw—the cells so perfect, so easily detached, no daubing in cutting them out, no extra comb about the base. I'd like to know what the trouble was. Possibly the very poor season had something to do with my failures.

With the Alley plan I had less trouble; but even with that there were more failures than in former years. A great advantage of the Alley or Doolittle plan over that of simply taking away a queen and letting the bees have all the brood to start queen - cells, is that you know something about, and have some control over, the grubs used. With several frames from which to select, the bees *may* use larvæ too old to make good queens. Still, I must say that my own experience in this respect hardly corresponds with the impressions I had gained from reading. As a general rule, where a queen has been taken away and the bees left to their own devices, no queen has hatched until 12 days after the queen's removal—in some cases 11 days after, and in rare cases 10 days after. I don't like, however, to run the risk of these rare cases, and there is another factor which enters into the problem. Suppose a queen hatches 12 days after the old queen's removal; are we sure that the bees started the queen-cell just 4 days after the egg was laid—in other words, just as soon as the queen was removed? You see, they may not have discovered their queenlessness for some little time. At any rate, if they have brood in all stages you don't *know* what they're using.

With the Doolittle cups you may know to the hour just how old your grubs are, *if* you get the bees to respect them. With the Alley plan you can also know to the hour the age of the grubs given. Suppose at noon, on Monday, you give to your best queen a brood-comb without eggs or brood where you think she will lay in it. On Friday, at noon, take away that comb and you know to a certainty that there is nothing in it older than four days from the laying of the egg. Take some of it and use it for starting cells on the Alley plan, and you may look for queens to hatch in 12 days. What chance can there be for failure?

Well, by that plan I have raised some of the finest queens, and also a few of the very poorest. Suppose that the bees start cells as soon as the material is given them, and that all are of the same age, I should expect very few poor queens. But queenless bees do not always start all the cells into queen-cells as soon as given. Some of the grubs are likely to be continued as workers for two, three, or four days. Then, having got their queen-cells fairly under headway, they conclude they want to start some more; and if they have nothing but grubs four days old—or seven days from the laying of the egg—these will be used. So they may use grubs so old that there is not time to feed them up into good queens.

A remedy in this case lies in destroying all grubs that are not started as queens within 24 hours, perhaps giving younger brood in their places.

I feel sure of good cells if they are started in strong colonies; but after the cell is sealed, is it any better off in a strong colony than in a nucleus, *if* it is kept just as warm in the nucleus? There may be a difference. At any rate, I look for a queen to lay a little sooner in a full colony.

If, however, two nuclei be in a double hive, and a thin partition between them, I do not see why a queen may not be raised just as well in either as if the partition were taken away and the two thrown into one. And if that partition is no detriment, may not more than one partition or division-board be used without hurt, thus increasing the number of nuclei in the hive?

GETTING RID OF LAYING WORKERS.

Very often it isn't worth while to fuss much with a colony having laying workers. It's likely to be a weak thing at best, the bees mostly old; and if honey is yielding well, I've had no trouble in distributing the combs and bees to colonies needing them.

Lately I have found a way to get rid of laying workers in a very easy manner. I take a young queen just hatched, or one that I have just pulled out of a cell; drop her right among the bees, and in the usual course of time I find her laying, and the laying-worker business is stopped. I have not had a single failure; but I have not tried enough cases to say that it will always succeed. C. C. MILLER.

Marengo, Ill., Dec. 6.

[Friend M., your italic *if*, when speaking about putting cells in a nucleus or in a strong colony, is just where the point is, especially if you have cells started very early in the spring. The nucleus may seem all-sufficient to cover and keep the cell warm, until a heavy frost or a cold storm comes along. Then I think the queen is oftentimes injured by the cell being chilled or partly chilled. I am sure your plan of getting rid of fertile workers will not always work. When we first got our queens hatched in the lamp-nursery, we fondly hoped that it would help us to get rid of fertile workers. But on several occasions we saw the bees cling to their fertile-worker queen, and refuse to acknowledge the one newly hatched. She would get out around the entrance and "go dead," sooner or later.]

HOW TO BE YOUR OWN CARPENTER AND JOINER.

SOME PRACTICAL HINTS TO THE YOUNG WOOD-WORKER.

The above sounds something like the title of a book, does it not? Well, I am not going to write a book on carpentry and joinery—just yet, at least, although I have often thought that I should like to do it. Several things have reminded me of the importance of such a work just lately. By the way, did you ever have a carpenter or a joiner work for you? and did you ever feel disgusted because he took a great amount of time, and made a botch of his work after all? If you have not, perhaps your *wife* has had some such experience. Yes, very likely you have at some time in your life tried your own hand at carpentry; and may be your wife has tried the same thing. Perhaps you have *felt* your own helplessness in so doing. Well, I have passed through these experiences again and again. In later years I have had a good deal of experience in hiring carpenters and joiners, and wood-workers generally; and I have been many times greatly disappointed to find that experienced wood-workers, many of them, had never learned common-sense short cuts, or little "tricks of the trade," that enable one to make very pretty-looking work, oftentimes, without very much time or expense being required. I have so often felt this, that it occurs to me that I should like to give a few simple hints to those who like to do their own carpentry.

In the first place, you need some tools, although not very many, for most ordinary jobs. These tools need not be very expensive, nor very elaborate; but they must be in good working order. In fact, you must *keep* them in good working order; and you must learn better than to run your saw or plane against nails. Do not be guilty of *such* blunders, whatever you do. In the first place, you want a good pocket-knife, and you want to keep it perfectly sharp. How many of the hundreds I have working for me, do you suppose, have a sharp knife in their pockets, whenever I tell them what is wanted? Why, lots of great big men and tolerable workmen do not have any knife at all. Others have a knife that is so dull it is almost as good as none. If you find your knife dull when you are in a hurry, and no whetstone is near, go to the nearest stone you can find, of any sort. I sometimes sit down on the doorstep and give a knife or other tool a rough sort of sharpening that will make it take hold of certain kinds of work even better than a fine smooth edge. Even garden tools can be greatly improved, often, in a very few minutes, by sharpening on the nearest sandstone. A good many say they can never *keep* a knife. Why, my friend, you ought to be ashamed of yourself. If you can't do any better, do as I do. Put a ten-cent knife in each pocket. If you lose one you will have another; or if you lend one you will have another. After your pocket-knife you want a saw, or, rather, two saws. Almost any sort of saw will answer if you keep it in order, or away from nails or gritty lumber. Then you want a good hammer and a good assortment of nails. Be sure you do not spoil what might otherwise be a good job by driving a big awkward nail into a light piece of wood. When you get a hammer that suits you, with a good assortment of nails, you want to practice until you can drive a nail exactly where you want it. If the nail is right, and the hammer is right, and the man a hold of the *handle* is right, the nail can be made to go within a hair's breadth of where it ought to go. You also want to learn by experience (by looking at the nail and looking at your work) when there will be a liability of splitting. I can endure almost any thing better than boards split up by unskillful nailing. If there is any doubt about it, have a brad-awl handy, and make a path for your nail so it *must* go right. A great many times, screws and a screw-driver must take the place of nails. You also want a good sharp hatchet, to be kept sharp like the saw; a chisel or two, and a couple of planes. In these days, when mechanics handle nothing but planed lumber, it is very seldom that there is any need of planing rough boards by hand. Still, you want a smooth-plane and a jack-plane. Then you want a try-square, a carpenter's square, and a bevel square. The two former must be accurate. If they are not so when you buy them you must file them until they are accurate. See directions in the A B C book. Then you want a sharp lead-pencil in each pocket. For very accurate work, use the point of your knife instead of a pencil. Learn by practice until you can saw so close to the mark made by the point of your knife that the path of the saw is just level with the knife-cut, after your board is cut off. Never saw a board off without a mark made with your try-square. Lay the try-square on the *edge* of the board, so as to have it square both ways. Always plane the edges of your board, and lay on your try-square to see that they are planed squarely. When carpenters put up shelves or other work, leaving the rough edges of the boards unplaned, it vexes me exceedingly. You can do a rough job quicker with planed boards and planed edges than you can cut and slash without rule or pencil, simply because you are in a hurry. Haste not only makes *waste* in carpentry, but you will find that "lazy folks" oftentimes "take the most pains" eventually.

Where you are to hitch on to other work, some judgment and discretion are necessary; but as a rule I would make the new work level and plumb. Keep constantly by you a plumb and spirit-level; and when you put up a shelf, door-step, or any thing else, that is supposed to be level, make it absolutely level—level north and south, and level east and west; and if any thing is supposed to be perpendicular, have it absolutely so, putting the plumb on both sides. Few carpenters will take the pains to do this. Many accidents, and much loss of life, even, have occurred by having steps awkwardly put up. If what you do is put up square and level, you will have the satisfaction of knowing that your work is right so far as you have gone; and if at any future time other work is to be added or attached to it, it will be plain, clear sailing.

Do not go to cutting up your lumber until you know exactly what you want and what you are going to do. Whenever I set a new carpenter at work it is always interesting to me to watch him, and see if he will not take more time in remedying blunders than he does in doing the work. A man who can go straight ahead, without balk or blunder, will accomplish a surprising amount of work in a day. But men who can do this are very scarce. This is why it often pays to employ a competent architect, and give him five per cent of the whole amount of money invested, when the job is of any magnitude. It is his business to lay the work out so it can be pushed along rapidly by ordinary mechanics, without running into any snags.

Have your lumber all dressed to an even thickness. Insist on this at the planing-mill; that is, have all your inch boards dressed to the usual ⅞; and have your two-inch stuff also dressed to an even thickness. If you are using scantling, have them all sawed or dressed so all are alike. It will pay you to have it done before you commence. When your lumber is all on the spot, sort it or classify it so you know just what you have. Before cutting, decide what lumber is to be used to the best advantage for a certain place. Never cut off a board or stick until it must be cut off. Over and over again, men will go to work and saw off a stick when there is no need of sawing it off at all, and then discover that they made it too short, or spoiled it for the work intended; and then there is some botch-work in splicing it. A great many times the stick or board can be put in place, or nearly in place, before it is cut at all. Cut one end, if it must be cut, and then take your stick or board and nail it in place temporarily, leaving the nails projecting so they can be drawn with a claw-hammer. Almost every carpenter I get hold of will nail things in fast, driving the nails clear down, and then discover that the board has to come off again. He will say that he can get it off again without splitting the board; but the board *is* split, and made ungainly-looking, if not spoiled, before he gets through.

How many carpenters pound their work all up with their hammer, by pounding a nail after it has gone clear home! One of the first lessons my father taught me was to avoid pounding up nice soft lumber. Strike your last blows so the nail is down level, without leaving a single hammer-mark.

Sometimes, when you are undecided just how things are going to come out, you can put your work almost all in place by means of nails driven part way in; then if a change is to be made, it can be made easily and nicely. After every thing is in place, just as you want it, and it all looks right, *then* drive the nails home to their places.

Do not measure with a rule or square, and then go and cut your stuff, saying it is so many feet and so many inches long. Why, I have seen a great pile of lumber all cut up wrong, because somebody made a mistake of a quarter or half an inch. Instead of using the square or rule, have some light strips of wood. Lay a strip on the place to be measured, and mark it with your pencil, or cut a notch with your knife.

Do not think of going to work without a ten-foot pole. When you get it all cut up or marked up, take your plane, plane it off, and mark it over again.

In taking dimensions, where you can not get a stick or pole in handy, say in getting the distance between two walls which are four or five feet apart, take two strips, say two pieces of lath. Lay them against each other, and slide one along the other until it touches the opposite wall. Now drive a nail through them, or, better, two nails, and you have the exact distance. It is taken quickly, and there can be no possibility of a mistake. If those who have worked for me, had, in taking dimensions in years past, done this, it would have saved me hundreds of dollars. Where somebody takes a rule or square, and measures, and then says it is so many feet and so many inches, it seems as if such a one *always* makes a mistake, especially when I am around. Oftentimes the dimensions are given to somebody else, and the second man does not understand.

If you are sending for a pane of glass to fit some place, give the boy two sticks to take to the hardware store. Tell him the glass is to be as wide as one stick, and as long as the other; and if you cut your sticks exactly right, your glass will be exact, and the same way in taking the dimensions of any thing. It is quicker, and absolutely safe. Many mechanics seem to think cutting things wrong, and sending boys for the wrong thing, should be counted on as a matter of course in every day's program.

Do not be in haste to saw off every thing. Many times people waste their time and strength in sawing off sticks or boards that do not need to be sawed off at all. They do it on the same principle that the girls did who were wasting their time in scraping and peeling labels from some glass jars. When I asked them why they wished to get the labels off, they said they wanted to put on some new, fresh-looking ones.

"Well," said I, "why not put the new labels right over the old ones, letting them be where they are?"

Nobody could answer or give any reason, and yet they were consuming valuable time.

A great part of carpenter work is simply to please the eye. It does not matter how your boards look where the work conceals it. By the skillful use of cheap slender molding you may make a botched job look artistic. Let the molding cover the joints and general unsightliness. I saw a very pretty ceiling, made of boards one foot wide, dressed on one side. These boards were not even sawed off at the ends, and the cracks between them were, some of them, an inch wide; yet strips of molding, put on skillfully, covered all the cracks and joints, and divided the ceiling into pretty oblong squares.

THAT DARK HONEY FROM ARIZONA.

PEACE AND GOOD WILL COMING OUT OF SOME OF OUR TROUBLES.

Perhaps every reader of GLEANINGS took a deep interest in Our Neighbors in our issue for Dec. 1; and I am very glad to see that all parties concerned have taken hold with a will to straighten up, so far as may be, the damage done by letting honey go out on the market labeled as a better grade than it really ought to have been. The first letter comes from the brother who inspected the honey when it was loaded on the car.

Dear Brother:—I call you "brother" because I think you are a brother in Christ, from the acquaintance I have had with you through GLEANINGS. I do not know when I have felt as bad as I did last night when I read in GLEANINGS of Dec. 1 about the honey that G. B. Shelton received from you that came from Phœnix, Arizona. I can't see how there could be any honey in the car like that represented by Mr. S. I am inspector of the Bee-keepers' Association of Salt Run Valley, and I tried to be honest in the matter; for if there is any thing that I do love it is justice. This is a great honey-producing country, and we have more honey than the local market demands; and we are compelled to find a market in the East for our honey, and it behooves us to sell it only as represented, if only from a business standpoint, leaving out the honesty and justice of the matter.

We load a car in two days when we ship. All the bee-keepers of Phœnix load the first day, and then the car is run to Tempe and finished up. I take off the screw cap on the can, and examine the honey as to flavor and color. I use a pocket-knife with a blade about three inches long. I had others, who would not be interested in the person's honey that I was inspecting, examine the honey as to color and flavor. I confess that I did not look at every can; but when I looked at most of the honey, if it was of a uniform grade I would ask the party whether the lot was of the same extracting, and he would answer yes. Then I would grade it 1, 2, or 3, as the case might be. I fought against any honey being shipped in *old cans*, but was ruled out for this year.

If the cans were badly rusted inside it would make the honey darker, and give it a bad flavor, if it had become granulated and was melted in the can. Some one of the shippers may have been mean enough to put bad honey in the bottom and good on top; but I trust not. I want you to find out, if you can, whom the honey belonged to, and let the association know all about it. W. L. OSBORN.

Phœnix, A. T., Dec. 15.

Here is another, written in an equally kind and fair spirit, from our friend Shelton, who is, perhaps, the principal sufferer:

Dear Friend:—Your very kind letter of the 12th inst., requesting me to make out my bill for damages, was received in due time, and I should have answered sooner, but I have been very busy. Now, my kind friend, I do not see how I can make out a bill for the damages on this dark honey, for I can not tell just what my actual loss is. I do know, however, that I care very much more for the injury done my reputation in the honey-business than I do for the actual loss in money. I will try to make all satisfactory with the men I sold the honey to, but I feel sure that I shall never be able to fully satisfy them and regain their confidence.

I must in turn thank you for your very kind and Christianlike letter, and I do try to be, and hope that I am, worthy to be called your brother in Christian love.

Brownsville, Pa., Dec. 22. G. B. SHELTON.

The following is from the corresponding secretary of the association in Arizona:

Friend Root:—I have been a reader of GLEANINGS for three years, and have not written a line intended for publication in its pages; but now the time has come for me to have my say, which will be principally in defense of Arizona honey, and of the Bee-keepers' Association of Maricopa County. I have read a short letter written by you to our recording secretary, after the receipt of the second car of honey from us. I have read carefully, *three times*, your sermon in GLEANINGS of Dec. 1st—to be sure that I comprehended fully the gist of the matter there set forth. I am free to say that I consider that sermon one of your best, in the way it connects religion with business, and pleads for fair treatment of customers in trade. I think I can comprehend why you should seem to write under a fit of "the blues," after receiving those discouraging letters from G. B. Shelton and the firm at Cleveland, O. When a man's honor is at stake, it *is* something to be worried about. I must confess that I have felt some satisfaction in the reflection that "misfortune loves company." I knew you were having some trouble with the first car of honey from Arizona; and when I learned that you had received a whole car of comb honey from one man, friend Ball, of Nevada, I thought to myself, "Now Bro. Root will have clear sailing. This car is uniformly of even grade and high quality, and it will go off without trouble, at a high price, and the buyer will be well pleased with his goods."

Imagine my surprise to find that some of *friend Ball's* goods were rejected and returned, which goes to show that some of us who are compelled to combine for shipment, in order to get our honey on to the market, do not have *all* the trouble that comes from dissatisfied customers.

I must say, too, that, when I read your sermon the *first* time, I thought, "Bro. Root is wrong in making public through GLEANINGS that which could have been better settled by private correspondence." I conclude that you thought it well to give the matter a thorough ventilation for the good of the shippers in particular, and the honey-trade in general. If so, the thing is *out*, we are all *in* for it, and here goes.

In the first place, no complaint can lie against the Arizona shippers of comb honey in either car on the ground of willful dishonesty in putting the white sections on the outside to show off, while the dark were put in the middle of the crate. No glass crates have been used. We had to use such crates as we could make or get made here, without glass. If any mistake was made it came from imperfect grading *without* intent to defraud. There was no inspection by our association inspector. Each man crated his honey to suit himself as to his own notions of what would best suit the case, expecting the honey would be sold on its merits. Some shippers in the last car marked their crates with "light" and "dark," as an indication to A. I. Root's men where they might look for the lightest honey and where for the darker shades, expecting, however, that such care would be taken at your end of the line as would enable you to know just what kind of honey you were sending to a customer. I am quite sure that I said in my letter accompanying the invoice of the last car, that we expected the honey to go on its merits, and any expense necessary to put the honey on the market in a fair and square way would be cheerfully borne by the shipper; and I say now again, grade, assort, inspect, and sample at *our expense*, sufficiently to give every buyer as nearly what he buys and pays for as human diligence can provide.

In regard to extracted honey, I am free to say that I believe no one of our shippers attempted any fraud or sharp practice on anybody. Every thing was left to the inspector to grade according to his best judgment. One customer says our inspector must have "an elastic conscience." In defense of W. L. Osborn, I want to say that those who best know him will, to a man, resent this charge. I believe there is not a more honest or conscientious man in Maricopa County. He desires to do the square thing every time.

Furthermore, we do not claim that the inspection was faultless. We admit its defects. It is quite impossible to examine 500 cans of honey from 20 different shippers, and pass upon its merits as to color and flavor, critically; load and invoice it in one day, the inspection to be made by one man. Yet this is what we attempted to do. Of course, there was force enough at hand to do the nailing, handling, and marking; but the rub comes in on the *tasting*, to determine flavor. I know of no way of determining flavor except by tasting. By the time a man has tasted honey two or three hours his tongue becomes so demoralized that all samples taste alike.

It is not necessary to go into details further as to what might happen and possibly did happen between the carelessness of the shipper on the one hand and the exacting demands made upon the inspector on the other. Suffice it to say, that every can went from here with the inspector's certificate pasted upon it, which was supposed to show what kind and grade of honey it contained. Most of it went as first-class, some second, some third.

Now let us come to the real gist of this honey trouble. We desire to know whether Bro. Shelton really got that bad honey that he complains of out of the first carload from Arizona. If he ordered honey by sample, why did he not get that which was as good as the sample? Furthermore, we want to know whose honey Mr. Shelton got, if it came out of our carload. We want to know whose honey it was that created adverse criticism from *other* customers, if any. This thing should be fathomed to the bottom. If you kept track on your shipping-book, of the marks on the cases as they were sent out, you can, by comparing with the invoice sent from here, determine the name of the owner. We have a copy here which can be used in an emergency. Follow it up and report. We desire it for two reasons. One is, to do equity in case any one has been wronged to the advantage of the shipper; secondly, to teach a lesson to him who has erred, for the benefit of his future work as a bee-keeper.

And now as to the future. Our bee-keepers' association has come to stay. We can not afford to do without it. Owing to our situation we are compelled to market our surplus product in carload lots. Not many of us are large enough producers to load a car alone; but by combining we can ship out of this valley several carloads during the season. If there are defects and objections in our plan, we propose to go to work to overcome them so far as human ingenuity can avail. In one letter some time ago you said we could succeed best to market our goods through commission houses in large cities, where the buyers could inspect personally the goods they bought. While there may be some force in this point, I will say that we desire to encourage and foster that kind of trade made by samples. We believe it can be done to the satisfaction of both buyer and seller, in most cases. At our bee-keepers' meeting on Saturday I said that our association had now reached a critical point in its history. We commenced shipping late this year, under somewhat difficult conditions. We did the best we could, learned some lessons, struck some snags, and are now getting the ebb from the first tide of success. I made the point, that it would prove to be wise to commence now and lay plans for our work for the year 1891. The subject was referred to our board of five directors, to be assisted by an advisory committee of three from stockholders. The committee will get to work soon and do their level best to lay plans for the benefit of our members, and for the consumers of Arizona honey everywhere. I can not suggest all that will be done, but will indicate something which I believe will be as follows: Require the universal use of new cans, each can to have upon it the name of the shipper or producer; also the inspector's certificate, stating kind and grade; similar marking as to kind of honey on the outside of the case; stencils to be used for marking cases and crates; comb honey to be marked with producer's name, and probably graded as to color, etc. Neatness of package, care in straining honey, accuracy of weight of extracted honey, notation on crates of gross, tare, and net weight of comb honey will be insisted on; also some plan for promoting more thorough inspection.

Any suggestions from A. I. Root will be gladly received. J. H. BROOMELL, COR. SEC.

Phœnix, Arizona, Dec., 1890.

[Many thanks, dear friends, for your fair, kind, and frank letters. There certainly can be no trouble in adjusting every thing pleasantly where a disposition of this kind is shown. We did have the name of the producer on the label of those cans; but perhaps we have had publicity enough so that all may see the lesson that it so plainly teaches. Light-colored honey is almost always pleasant-flavored honey, unless there is something so extraordinary as to give it a bad taste; and I fear these rusty second-hand oil-cans may have something to do with it. The trouble is, somebody will let a can go that has not been perfectly freed from the taint of oil. There is a difficulty, as we have found here, in tasting such a large number of samples of honey; but I do not believe it is necessary to taste it *all*. If poured into a little vial, or even into a saucer, the color and transparency will show pretty plainly the quality; and if the honey is nearly all good, when a sample of bad taste shall present itself it will be readily thrown out. The white-sage honey from California is so perfectly alike all through that there is no need of tasting or sampling. You may take any can you choose, and it is exactly like the rest of the carload. This is certainly a great advantage when such a state of affairs can be secured, and I do not know why alfalfa honey should not run as regular—that is, if a locality can be found where nothing else is mixed with it.

Here is something further in regard to the matter:]

IS ALFALFA HONEY EVER DARK.

Friend Root:—I notice that F. A. Salisbury, page 895, speaks of having received some of that dark extracted *alfalfa* honey, and you speak of it in your foot-notes in the same way. Now, I wish to say that there *is* no dark extracted alfalfa honey. While it is possible for it to become dark in appearance while in the comb, if left on the hive too long, when extracted, if gathered from alfalfa, it is bound to be white. You might just as well say, "dark white-clover honey." We who are producing alfalfa honey want to get it so understood, that, when we offer alfalfa honey, we mean *white* honey, as it invariably is. There is no danger of real alfalfa honey being called New Orleans molasses. You might call it "partly" alfalfa, or mixed, as it surely is, if dark. Any one acquainted with it would understand what dark alfalfa extracted is, but the majority would not. Charles Adams.

Greeley, Col., Dec. 22.

[Friend A., I think you are right. The pure extracted alfalfa we have had is just as white as any white-clover honey, and just as uniform. The problem seems to be, then, to avoid having the bees gather honey from other sources that may get mixed with it. We conclude this subject with a letter from friend Ball in regard to the honey that showed best on the outside.]

Mr. Root:—I see in Gleanings there has been some complaint about some of the honey you got from me being poor—dark in the middle of the cases, and white outside. Now, Mr. Root, I don't know what to say about this, as you say sometimes. There were a few sections that looked yellow, caused by leaving on the hive too long; and I should have put them by themselves; but I find people sometimes that prefer the yellow cappings to the white. I never could see any difference in the honey. I packed but very little of my honey myself, but I charged the ones who did, to be very careful and not put in any thing that was not nice. Mr. Root, if you have lost by any of my honey, please let me know, and I will try to make it all right. I shall be more careful about assorting and packing my honey after this. W. K. Ball.

Reno, Nev., Dec., 23.

[Many thanks, friend B., for your kind offer. With such a proposition we certainly can have nothing to complain of. I know, as you say, that the stained or yellow sections are just as nice honey, and may be a little better, than the white ones; but there are many retailers who would not accept honey if they found the white sections on the outside and the dark or stained ones inside.]

CLOSE SPACING.

MORE BROOD AND REGULAR COMBS; FIXED DISTANCES.

I wish to add a word on close spacing and fixed distances, as these I regard as very important matters, and they have been my hobby for a number of years. It is folly to use frames hanging hap-hazard, and hand spacing is a sort of guessing at one of the most needed parts of correct bee-keeping. We may space frames ever so nice at the top, but the bottom is sure to be out of true, and a frame can not be made so but it will warp and twist. If there is more weight of honey or brood on one side it will vary the frame ¼ inch. It has long been my belief that we all must come to fixed frames.

You may end up a hive of hanging frames enough to see the bottom-bars below, and you will see them all distances apart (except what are close together).

One cause for so many drones is those wide gaps; and I feel very sure the cause of bare spots of no brood is caused by two combs so close that the queen can not get there. I have seen a fourth of an L. frame without honey or brood, and the cell not more than half depth; and I am very sure that if they had been spaced and fixed at ⅜ apart, there would have been no such trouble. These shallow cells may be caused by being cut off too close; and if a comb is crooked they should be pressed back into place before shaving off for close spacing.

Three years ago I made a number of stays of wood, half the length of, and as wide as the end-bar, and 3/16 thick. These I tacked on to the side of the upper half of the end-bars, which made a nice stay; and as I had used a number of hives with ⅜ spacing, and was so sure it was the best distance, I found those a I could ask. All the now hanging frames can be easily made exact, and it seems to me there should be no stay on the top-bar, as there is no need of it, and it means so much more gum and crushed bees. It is very important that the frames be wedged at each end; that is, on the outside of all, for they all are twisted more or less, and all the little openings will soon be filled with propolis, and nice even spacing is out of the question. In fact, there is need of scraping the edges of the stayed frames once in a while.

You speak of a follower, to be wedged up. To be sure, they have some good features, yet are quite a trouble. If there is much space back of it, if the bees can get there they will, and they are quite apt to find a way there. If a case happens a little out of place, down goes a lot of bees to play the loafer (I know, for I've had the same thing).

If there is a good ⅜ allowed at the outside, and the combs are kept shaved down, or, rather, shaved to start with, and stayed only half way down, there is not much trouble in getting out the first comb. It seems to me not enough to take the place of a follower. I am satisfied there shouldn't be over ⅜ space between combs, and a little less between the bottom of the frames and bottom of the hive; and for losing no bee time there should be only ⅜ at the end of the frames. More space than the little bee can reach across is loss to their valuable time, and just so much to us. Don't you remember, friend R., of cutting out chunks of honey from box hives, and what a narrow passage there was between them—yes, less than ⅜—with the honey sometimes 3 inches thick?

I would say to those who never use fixed distances and ⅜ spacing, just try one hive; and when you get the combs shaved down and all in order, see what sheets of brood you will have, and how the honey will go (upstairs), and, too, where you used ten combs seven or eight will suffice. E. P. Churchill.

Hallowell, Me., Dec. 25.

[You have given us some excellent reasons for close spacing; but ⅜ inch between comb surfaces—isn't that rather close? Why, that is only 1¼ inches from center to center. At the National Association, Dr. A. B. Mason and some one else argued for that spacing, if the spaces were exact. But the majority seem to prefer 1⅜ inch. Your spacers amount virtually to a modified Hoffman frame, or the same as was suggested by J. F. McIntyre. See Gleanings, page 780, last year.]

MIGRATORY BEE-KEEPING.

43 COLONIES GIVE AN AVERAGE OF 47 LBS. PER COLONY IN ONLY 8 DAYS.

Friend Root:—This is a subject that is certainly worthy of the consideration of that portion of our bee-keeping brethren who are not so favorably situated as to reap the benefit of both summer and fall harvest. Situated as I am, on the verge of large areas of land subject to overflow from the Illinois River, thereby rendering it useless for agricultural purposes, and a large per cent of the territory a swampy waste, yet it never fails in the fall of the year to yield up a world of bloom, and hundreds of acres become as yellow as gold, chief among which is the golden coreopsis; and it is here that I have become conscious of the fact that tons and probably hundreds of tons of honey of the very best quality are "lost upon the desert air" for the want of enterprising bee-keepers who will accept of the golden opportunity and place their bees where they will gather and store the precious nectar; and I will just state, that the "golden coreopsis," or Spanish needle, stands at the head of all the honey-producing plants with which I have had any experience. It is not only the richest in nectar, but the quality is *par excellence*, and sells in my home market equal to, if not better, than clover honey. Its weight is fully 12 lbs. to the gallon, and it seems to need little if any curing by the bees when gathered. I have never yet seen any crude or unripe Spanish-needle honey, notwithstanding I have extracted it from the same supers three times in two weeks, and on one occasion twice in five and six days. One colony netted 73 lbs. in 5 days, and the apiary of 43 producing colonies, in 8 day, sproduced 2033 lbs., being upward of 47 lbs. per colony; and this is not true of that particular year only, but it has proven the surest honey-producing plant we have in this locality. Nothing short of cold rainy weather will spoil the harvest from this plant. But to return.

Having occasion to establish out-apiaries I found it impossible to locate them so as to get the benefit of both clover and coreopsis range, and it was no pleasant feature in the trade to see my home apiary outstrip the apiaries isolated from the reach of the coreopsis 2 lbs. to one, if not more, when there were thousands of acres as yellow as gold, and tons of honey going to waste. This seemed to me to be not in keeping with a progressive age; and I reasoned that, could I but successfully move my bees at the close of the clover harvest into the region of the fall-blooming plants, I certainly would add a new impetus to the business, and make the trade more lucrative.

I communicated my ideas to some of my bee-keeping friends, and received cold comfort indeed. "It is a practical impossibility," said one bee-keeper of no light reputation; "and you will be but too glad to give up the undertaking, should your experience be any thing like ours," he further added. Some three or four years have elapsed since this conversation, and I now stand ready to prove that the moving of bees at any time in the year is a practical possibility.

In vindication of the above I will state that I have moved from 100 to 190 colonies from one to eleven miles, twice and three times a year, for the last three years, without the loss of one single colony from the transit. Four years ago I lost 13 of my best colonies, which gave me a pointer that led to my complete success. It is indeed an evil wind that blows no man good, you know; and should your many readers be interested in this subject I may give you my *modus operandi* in a future letter.

Spring, Ill., Dec. 24. J. M. HAMBAUGH.

[Friend H., we are exceedingly obliged to you for the facts you give us above. I have thought of it a good deal since our talk with you on the cars when we were at Keokuk. Your suggestion just now comes like an oasis in the desert, for it indicates that we need not go to Arizona, nor California either, to find undeveloped fields for the apiarist. By all means give us the further particulars.]

A NEW IDEA.

GIVING BEES A FLY IN A WIRE-CLOTH CAGE IN THE WINTER TIME.

Being an apiarian, a subscriber, and a correspondent of the bee-journals, I would suggest that, for the advancement and general progress of bee culture, there ought to be a premium offered of small amount, say $500 or $1000, to any one who would present a new idea upon this subject. You see, I am of quite an inventive turn, and want to be among the "premium-seekers." However, I am very liberal, and I presume I want to "quack" about as bad as some others, and think that I have a new idea, and so for this time I will offer it and not charge a cent. In order to hit upon a new idea, I have always found that we have to look where no other person has already been hunting the ground over. That is the reason why that, when the new idea is first presented, it usually gets so ridiculed, and all the folks think that somebody is going crazy. But as it will not do to ask you to read an *acre* of introduction, I will proceed to offer the new idea, and see how many "knowed it all the time."

Much discussion has been had on wintering, and there are very diversified opinions as to the best way. I conclude (naturally) that *my* way is the best, but as yet I have not seen it advocated. Prepare a room, large enough for your bees; make it very light, also very warm; have it so you can keep it warm with a stove or heater or furnace, as your convenience will best permit. My room is 30x24 feet, and is just above my store, where it keeps quite warm during day and night. When your room is ready you will want my *new idea*—to place at the front entrance of each hive (which will cost about 20 cents to the hive), which allows each colony a space to fly in, of about 10 square feet. In this you can feed them, give them water, and sit near and enjoy them in their flight as long as you please. I tell you, it is delightful. The way to tell whether they are doing well is to notice whether they are dying off faster than those in the cellar. I have 74 colonies in all, some in the cellar; in fact, almost all; but from what I now see, I wish I had almost all in my bee summer-room. I have a cellar 30x40 feet, expressly for my bees, as dry as a powder-house, and probably not surpassed by any in the State; but my summer-room, with the *new idea*, from the present outlook, is decidedly the best, and I feel quite certain that I will adopt it in the future, whether anybody else does or not.

You will very naturally ask whether it is necessary to keep a fire all night. By no means; for if it freezes in the room every night, as long as you have a fire every day it will not hurt the bees at all; neither will it hurt them if it freezes in the cellar, if the cellar is dry; but if it is damp, and it freezes much, you are going to lose your bees. When your bees begin to look shiny with moisture, then look out.

Nirvana, Mich., Dec. 23. F. D. LACY.

[It is just as you say, friend L. The thing you describe is very old. While some colonies have doubtless been saved by giving them a fly in the manner you describe, I believe that all who have used it finally discarded it as being more bother than the bees were worth; and as a rule, the bees that are given a fly in this way for any considerable length of time dwindle down worse than those that are left in the cellar, or outdoors without being meddled with at all. I congratulate you on your pleasant, genial way of presenting the matter; and this, in fact, was the principal reason why your communication on a discarded idea found a place in our columns.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 175. 1. *At the close of the white-honey harvest, is it better to take off all sections and secure any later surplus by extracting, or would you use sections throughout? 2. What surplus do you have after clover and basswood, and what proportion does it bear to the white honey?*

We have no fall or dark honey here of late years.
New York. C. G. M. DOOLITTLE.

2. Our best crop is clover. We can not give any figures on the relative proportion of both crops.
Illinois. N. W. DADANT & SON.

1. I would take the sections all off at the end of the white-honey crop. 2. We have no surplus after the basswood.
Wisconsin. S. W. E. FRANCE.

1. I should act as my market suggested was wisest. 2. Goldenrod, asters, etc. Often we get as much or more than we got earlier.
Michigan. C. A. J. COOK.

This is a good question to ask, but a hard one to answer. With us it would probably be as well to take them off, as only a small proportion of our surplus is dark.
New York. C. P. H. ELWOOD.

I would use sections to the end of the season. In this locality, when we have plenty of rain, white clover from the seed blooms almost to the close of the season.
Illinois. N. W. C. MRS. L. HARRISON.

I have had very little experience with late surplus honey; but with the experience I have had, I should be in favor of extracting it and feeding it back in the spring.
Ohio. N. W. H. R. BOARDMAN.

1. I think it best to use sections through the season. 2. Helianthus, or wild sunflower, goldenrod, fireweed, and occasionally buckwheat. Usually more than half of my surplus is from these sources.
Ohio. N. W. E. E. HASTY.

1. My practice is to remove all sections at the close of the white-honey flow; though in some localities, where dark honey is plentiful, I presume it is advisable to secure some of it in sections. 2. None worthy of mention.
Vermont. N. W. A. E. MANUM.

1. Having every thing ready for it, I prefer to keep on with the sections, and then the brood-nest is always in good shape. An extracting-super might be better. 2. Not *very* much of any thing, except some years cucumbers and occasionally buckwheat.
Illinois. N. C. C. MILLER.

1. I can sell dark extracted honey to better advantage than dark comb. 2. Sweet clover, bonesets (several varieties), asters, goldenrod—sometimes more than ten to one over white honey, always more. I have had as many as 70 lbs. of sweet-clover honey per colony, and as white as white clover.
Ohio. N. W. A. B. MASON.

All comb honey produced for mercantile purposes should be white, and all dark honey should be extracted. The latter can always be sold, but not so with dark comb honey, which often can not be disposed of at any price, and is of no other value than strained honey. In the southern part of Ohio there is hardly ever more fall honey raised than is necessary for winter stores.
Ohio. S. W. C. F. MUTH.

1. I would not advise raising comb and extracted honey from the same colonies—not in a locality like my own. It is a question of economy of labor. 2. After clover and basswood we have pleurisy-root, buckwheat, goldenrod, and boneset, any and all of which may and usually do give us a surplus crop, and usually we expect to get from one-half to two-thirds the amount of honey from these plants that we do from clover and buckwheat.
Michigan. S. W. JAMES HEDDON.

Here there is usually a fall yield from heartsease, lasting until frost kills the plants, or cold weather keeps the bees in the hives. This is sometimes more abundant than the early honey harvest. The best yield I ever knew came in the fall. I prefer to "taper off" by giving extracting combs to as many colonies as possible, so as to reduce the number of unfinished sections to the minimum.
Illinois. N. C. J. A. GREEN.

1. This is a question for the comb-honey man to answer; but it occurs to me, that, if rigged up for comb honey, I should prefer to run the entire season in that line rather than be at the expense and bother of providing myself with the two outfits. 2. Fall flowers, and occasionally mint and buckwheat; probably the proportion would be one-fourth as much as compared with white honey.
Wisconsin. S. W. S. I. FREEBORN.

I always take off sections of white honey before the advent of dark honey, for a very thin border of dark honey in a section spoils the whole for sale as a No. 1 grade. If my fall yield was usually large I would run for comb honey until the close of the season. In my locality I have a trace of buckwheat, but in a favorable season I have a bountiful yield of "bug-juice" for a series of years. Probably fall honey is five per cent of the whole yield.
New York. E. RAMBLER.

[As I expected, most of the friends say, "Let the bees finish up what surplus they are going to give, in the sections." Friend Heddon suggests, however, that it is a question of economy in labor; and Rambler breaks over our rules, and speaks of "bug-juice," when it was agreed, as I had supposed, that no one was ever to use the disagreeable words any more. But when the brethren were talking about taking their chances of having their white honey spoiled by a streak of dark all around the outside, I began to wonder whether a good many of them had not forgotten the dark, disagreeable *honey-dew* that pestered us so, only five or six years ago. For my part, whenever I find this dark, cheap, molasses-looking stuff dotting the combs all through the hives, I would pull off the sections of white honey as fast as possible, even if some of them were not more than half filled. Friend Muth hits it exactly when he says that dark comb honey oftentimes can not be disposed of at any price. We have got a good lot on our hands now; and if there is anybody who wants to make us an offer he can have it very cheap.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

A PLEA FOR OUR SEEDSMEN, AND OUR CATALOGUES AS THEY ARE; BY ONE WHO HAS HAD YEARS OF EXPERIENCE IN MARKET-GARDEN SEED-STORES.

Friend Root: — Having been a reader of GLEANINGS for several years, I, of course, take some interest in its make-up, and particularly so in regard to cutting down the varieties in seed catalogues; but at the same time I can not indorse all you and Mr. Green say on that subject. While I agree with you, that we have too many kinds, yet the seedsman has points to look after that Mr. Green loses sight of entirely. From his standpoint he would have nothing in a seed catalogue except the kinds he had tested and found to be the best—losing sight of the fact that a seed establishment is not a local concern. It is national. Catalogues are going from Maine to California, and all the isles of the sea. Now, while the kinds he would catalogue may be the best for his particular locality, how is it with his neighbor in California? The climate there is very different; the varieties that do best here may be and often are entirely worthless there, while the very kinds Mr. Green condemns will be just what he must have to make a success. The seedsman is constantly getting reports from his customers from different parts of the country, and knows this to be a fact; and as long as he has the financial end of this problem to handle, it is safe to say that he knows what he is doing. Now, if the seed establishment is to be a *national* concern, the seedsman must carry varieties adapted to all parts of the country; but if he is just going to keep a country store, the case is very different. Which is it to be—shall we adopt Mr. Green's policy, and thereby reduce all the big seed establishments down to the same footing with the country store, or shall we consider that seedsmen know their business, and conclude to let them run it as their experience has taught them is best? I believe there is not a seedsman in the world who would not gladly cut very materially, if he could do so, and satisfy his customers.

Suppose we come right down to the local aspect of the case—the local market. If Mr. G. had followed gardening and attending market for a living for, say, ten years, as I have done, he would begin to talk like this, perhaps: "Yes, in *theory* it's all right; but as a *bread-winner* it is not a success." The man who attempts to make a living on marketing very soon discovers that there are different tastes to consult besides his own; and a customer who wants a head lettuce, for instance, will have a head lettuce, if it's on the market, while probably the very next customer would not have that kind if you *gave* it to him. You may rest assured, the market-gardener knows better than to cut down his list to the extent Mr. Green recommends; and if his seedsman doesn't keep the seeds he has found to be the most profitable, he will send to some other part of the country and get them. It is not theory the market-gardener is after; it's hard, solid facts in the shape of dollars and cents; and he knows what brings them in, better than any outsider can tell him.

One more point and I will close; but in that one point I beg leave to differ with Mr. Green, from the word go. He says, in GLEANINGS of Oct. 15, "The new kinds and sorts are mostly made by the seedsman in order to have a novelty to introduce." Shades of Moses! Did he ever stop to consider how long it takes a seedsman to get up a reputation, and that the reputation represents just that much capital? The better it is, the more it is worth. It certainly takes more than *two years.* Now, I ask you in all candor, Do you think that, after a seedsman has gotten up a pretty good reputation, he is going to be either knave or fool enough to throw it away for the few paltry dollars he would get out of it as a novelty? Oh, no! it's worth *too much money* for that, even if he were inclined to be dishonest, and I believe very few are. I think if Mr. Green had, say, two years' experience now in some good reputable seed-house it would modify his views considerably as to the honesty of seedsmen, and also as to the cutting-down process. Study this question over on both sides, friend Root, before you make up your catalogue; and I think that, if you expect to run any thing more than a local store you will not cut down so severely.

Yours respectfully, ——.

My good friend, I am very glad indeed to get the above communication, especially because it enjoins the very virtue (charity) that I have been exhorting to. I am glad to have somebody speak well of the seedsman, who is in no way interested, and yet one who knows all about the inside machinery of the establishment of a seedsman who issues a nice catalogue. But, my good friend, your experience has been mostly with one of the best and most honorable seedhouses in the United States. Our Experiment Station, represented by our good friend Green, knows very well that all you say is true of the seeds where you work. If you take all the seed catalogues that are put out, as friend Green and I have done, you will see a good deal that sadly needs the very work that friend Green and myself are trying to do. The same thing is over and over again catalogued under different names; and no attempt is made, seemingly, to reduce the number. Many times there is only a *shade* of difference in varieties, and yet year after year the two are catalogued. Again, there is the greatest misrepresentation. Let me give you an illustration. It will come in very well, for I have been thinking to-day it devolved on the bee-papers to show up *again* this fraud in regard to the Rocky Mountain bee-plant; viz., calling it by a new and flashy name; representing it as heretofore unknown, and telling most *preposterous* falsehoods in regard to the amount of honey it yields. We exposed it a year or two ago, and I wrote to the proprietor of the seed catalogue. It is true, I got a reply from him, but he neither seemed to want to be set right nor did he make any promise of correcting his false statements when they were plainly pointed out to him.

A TRIBUTE TO "WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT."

I send you $1.00 for your excellent GLEANINGS. It is as good as the Bible in many respects. I can just cry with joy over a great part of your talk, of the garden as well as the Home talk. From experience I know just how dear Mother Earth fills you with joy and wonder. Oh how wonderful those berries are! I had a crop last year that surprised the people about here, and also with my early and late work in the garden. God smiles over me with love when in the field. I always feel like shouting when I see the way *you* get at it, which is the true way to be happy. May you live long to encourage all.

Hallowell, Me., Dec. 25. E. P. CHURCHILL.

Why, bless your heart, dear brother, I did not know before that the world contained *another* man who loves God and nature so exactly as I do. And then your wonderfully graphic way of telling it—"*God smiles over me in love!*" There is inspiration in the very thought. If I ever get away down in Maine, won't we have a visit?

A KIND REPORT FOR GLEANINGS, AND A GOOD REPORT FROM WASHINGTON.

I can't do without Gleanings. Why, do you know the Dec. 1st issue was worth to me more than ten years' subscription? I have had celery on the brain for the last year. We have sold over $1000 worth so far this season, and find ourselves with 12,000 plants on hand, and no place to store it, when here comes Gleanings and tells us to take the pigpen. Good for you! We have just got the pigpen, 30x25 feet; but who but A. I. Root would have thought to make use of it? The boys are at it now. The floor came handy to line the sides with, leaving a 6-inch space all around, which we fill with earth from ground underneath; and now with three or four loads of manure on top of the roof, we are fixed with a celery-house that will hold at least 6000. Celery here in our moist cool climate grows wonderfully large and fine. We have thousands that will weigh 4 or 5 lbs. to the single stalk—Golden Self-bleaching, 2½ feet tall, with leaves that are two inches at the base, and as brittle as an icicle.

Fidalgo, Wash., Dec. 12. H. A. March.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

OBJECTIONS TO THE 60-LB. SQUARE CANS, FROM A HONEY-DEALER.

I notice considerable discussion in Gleanings about the 60-lb. tin cans for extracted honey. My observations are, that they are not the best, for they are very tender, and easily made to leak, especially if out of the cases, and nails are so apt to be driven into the tin through the cases. They are too frail, and not solid enough for the weight put in them. When they are leaky it is difficult to tell where the leak is, and you can not stop it without the tinsmith. The pine fish-kegs holding 75 and 150 lbs. each are the cheapest and most sensible packages for extracted honey; for, if leaky, the hoops can be driven and quickly coopered. Another objectionable feature of the tins is, that buyers get the impression that all honey in those cans is California honey, and are more or less prejudiced. What say other honey-dealers?

Albany, N. Y., Dec. 25. H. R. Wright.

[We should be glad to hear from the other dealers.]

THICK AND THIN TOP-BARS.—ONE WHO HAS USED AND DISCARDED CLOSED-END FRAMES.

The new catalogue is at hand. It is a very neat one, and quite an improvement over former editions. I have used top-bars varying from ¼ inch to 1 inch in depth, and from ¾ inch to 1⅛ inches wide; but I have always had more or less burr-combs after the second season. I have some of Root's S. frames that have been in use two seasons, and have never had burr-combs built above them, though I have had sections filled over them each season; but, judging from experience, I am sure that burr-combs will come, in time. Exact spacing, by using fixed distances, can be maintained only by having every comb perfectly straight, and the septum exactly in the center of the frame; in fact, each comb must be perfect and an exact counterpart of all the others; if not, you will very likely change the spacing every time you change a frame. Fixed distances have advantages for those who move their bees often. They also have disadvantages; and the point for each one to decide is, whether the advantages will outweigh the disadvantages. I used two thousand closed-end frames two seasons, and have decided in favor of hanging-frames.

Robert E. Ashcraft.

Brookside, Mich., Dec. 8.

[That's right; let's have both sides of the question. You do not tell us what sort of bee-space you had when you made your experiments with top-bars. In Elwood's apiaries I saw no burr-combs, or almost none, and he used a ¼-inch bee-space, scant if any thing. The same condition of things I saw in other apiaries where the ¼-inch bee-space and fixed distances were in use. There are several things that go to prevent brace-combs; and not the least important is the *right bee-space* above the frames. I am glad you have spoken out in regard to closed-end frames. There are and will be others like you; and, on the other hand, there are just as many who would use nothing else. It's a good deal in knowing how to handle them. We can't (no, we won't) all use the same kind of frames or hives.] E. R.

WHAT THE EDITOR OF THE TELLER SAYS OF OUR REPRODUCTION OF THE FRANCE BEE-KEEPERS' ASSOCIATION.

Mr. Root:—I notice with pleasure your reproduction of the assembly of bee-keepers recently at Platteville. You could hardly have been prompted to the undertaking by that spirit which usually goes under the head of "enterprise," for there surely is no money in it. The *Root* of your motive must be in your "good will toward men"—a virtue that blossoms profusely in Gleanings. The faces of the group are nearly all familiar to me. They are of worthy citizens who are mostly friends and patrons of *The Teller*. Edward Pollock.

Lancaster, Wis., Dec. 20.

A LITTLE MORE ABOUT THAT "SNUFF-BOX," ETC.

Friend Root:—I think your "snuff-box" illustration on page 757, in connection with those delicious gems, was very unfortunate, as one does not like to be reminded of the filthy thing every morning at the breakfast-table. Why did you not think of the humble clam, or the more æsthetic oyster whose bivalved shell opens like your "hinged gems"? In the South your illustration would not be appropriate, as the snuff-box in common use among the "ladies" at home, in company, and at church, is the ordinary small tin can in which it is packed for sale. The cover is removed, and the can passed around for each who desires, old and young, to "dip" in their little "tooth-brush" (a small stick chewed at one end), with which the snuff is "rubbed" upon the teeth. It is certainly an evil habit, injurious to both body and mind, if not degrading to the soul. I often think, in connection with the tobacco habit, to which I was at one time addicted, of that terrible sentence, "He that is filthy, let him be filthy still."

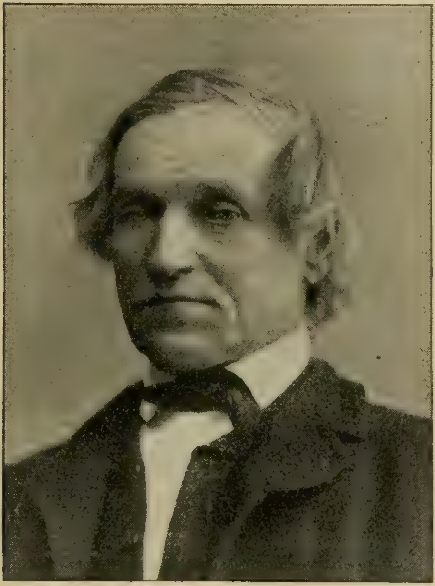
Some one, long since, asked in Gleanings, whether a person could be a "consistent professor of religion and be a user of tobacco." I should say yes; for a "professor of religion" covers a broad ground, and not well defined. But if the question were asked, "Can a person be a *Christian* and a habitual user of tobacco?" I should say no. A *Christian* will strive to overcome all evil habits. C. F. Parker.

Mentone, Ala., Dec. 21.

OUR HOMES.

I therefore, the prisoner of the Lord, I beseech you that ye walk worthy of the vocation wherewith ye are called, with all lowliness and meekness, with longsuffering, forbearing one another in love; endeavoring to keep the unity of the Spirit in the bonds of peace.—EPH. 4:1–3.

This is a wonderfully interesting world to me. I love the plants and the flowers; I love the moon and the stars, especially when the plants and the flowers are held in their icy bondage. During these shortest days, there is a wonderful interest to me in marking the course of the shadow, especially as it approaches noontime, and comes to its highest point northward. As the sun slowly comes to its furthest passage in its journey south, and rests awhile, apparently, just before Christmas, then gradually starts northward to bring us a new spring and a new summer, and a new year, it becomes to me a matter of intense interest. I love, also, to see the sun rise and set—to see how it hitches a little further every day northward, and thereby gives us days a minute or two longer. But amid all the studies of the things I see, nothing interests me more than the study of humanity. I especially love to meet with people having peculiar attainments, graces, or individualities. In my recent visit to Keokuk I met many friends I had never seen before. One of them interested me so much that I have asked for his picture. He has granted me permission, but it was only when I explained to him why I wanted it, and I take pleasure in introducing to you my good friend Wyand, of whom I have previously spoken.



HENRY WYAND, KEOKUK, IA.

Those who have seen friend W., and talked with him, will agree that the picture is a very faithful one, but still it does not show the peculiar vein of pleasantry that he shows when talking; in fact, I feared we should never get that in any picture unless the artist should take him unawares by the instantaneous process. I am not going to give friend Wyand's biography, because I have not got it to give. He is quite a modest man, and says that he does not think he would have granted my request had it not been "for the outside pressure in the family." It was friend Wyand, you may remember, who captured Ernest and myself and several others by promising to show us artesian wells, their attendant water-motors, dynamo, etc. I judge he is a man full of life and energy; and one thing that interested me in him was that he is, like myself, very much inclined to be impatient when things do not move off in harmony with his stirring nature and disposition. I should not wonder if his wife and children would smile a little when they read this. He is not only a rapid walker, but he is a rapid talker as well; and if you are not close by him, and listening attentively, you may not catch all he has to say, for he is full of ideas and projects, and especially full of quaint dry jokes that surprise one and get him to laughing until he gets in a mood of being pleased at any thing that may be said. As I was to leave on the 3-o'clock train of the last day, in order to make home before Sunday, I, with several others, made my visit to the Dadants the day before. Then when the convention adjourned to go in a body to the Dadants', during the last afternoon, it was arranged that I should go with friend Wyand to see the greenhouses, strawberry-patches, zoological gardens, etc. At the adjournment of the convention, the various vehicles drew up and rapidly loaded up the members. Friend W. was on hand promptly, according to appointment; but his horse and buggy, for some reason, had not "materialized." My good friend began to be greatly annoyed, because every minute shortened the time we should have for visiting the various places that he knew would interest me. He had planned a pretty good-sized program for only two or three hours, and it was very desirable that we get to moving. One of his daughters, so he told me, was to bring the horse and buggy. Ten, fifteen, twenty minutes passed—no daughter came in sight. He went up and down the sidewalk with manifest impatience, and would insist on going to the livery for a rig; but I urged him to be patient, and also assured him there was some excellent reason for the unexplainable delay. While we were waiting I made the acquaintance of another daughter of his who is head saleswoman in a fine drygoods store near by. It always pleases me to be able to take an expert business woman by the hand. The proprietors had tried repeatedly to get a man to take charge of their store. Miss Wyand, however, seems to sell more goods, and to please customers better, than any of the male clerks that can be found around Keokuk.

Finally the missing vehicle, with its nice-looking young lady driver, makes its appearance. Now, it was a very easy thing for me, under the circumstances, to see that my good friend ought not to scold in the presence of company. At the same time, I was well aware that, under the same circumstances, *I* should have been very likely to scold, even in the presence of company. May God forgive me, and may my good patient friends and relatives forgive me, for the many times I *have* forgotten, neglected, or refused, to follow the same course which I am trying to teach you, dear friends, as I talk to you this morning. I knew that friend W. felt a good deal like scolding, and I was afraid he would scold before he gave his good daughter time to explain. The reason I was afraid of it is because it would probably have been just like *myself* to do such a thing. As she drove up, looking bright, ruddy, and happy from her exercise in the cool autumn air, she presented a very pretty picture. Very likely she has read GLEANINGS and these Home papers. She knew that the man by her father's side was A. I. Root; and if my good friend W. had made up his mind that he would scold her for being late, I was equally determined that he should *not* scold a word, if I could stop it. I am not naturally inclined to push myself forward among strangers. It is not at all easy for me, in one sense, and I am afraid it never will be; yet when I can push forward for Christ's sake, I hope I am ready and glad to do it. Yes. I can look back to many times when I have really enjoyed being seemingly rude, for the time being, when I did it for *Christ Jesus'* sake.

Friend Wyand started, in his rapid way, to the buggy as it rounded up to the curbstone. But I can walk fast too, and I pushed ahead of him, introduced myself to his daughter before he had time to say a word, and talked so fast, at the same time taking pains to stand between the two, that he could not even get a word in "edgewise." Perhaps he did not notice it at all. May be he thought it a little strange that I did not wait to be introduced in the orthodox way. But I hope that, when he sees this, he will forgive me. Yes, I am quite sure he is glad now that I did just as I did; and I am sure, too, that my good young friend will forgive me. I am inclined to think that friend Wyand's family, all of them, girls and boys, are in the habit of working outdoors and indoors. I had decided, in my own mind, that Miss Wyand was quite a pretty young woman; but as I finally gave her father a chance to speak he ventured just a little word of remonstrance, asking her why she did not get there sooner. My talk with his daughter had disarmed him, and he had doubtless got over most of the impatience he felt, and under the circumstances he did exceedingly well. I have not a word of fault to find with him, mind you, for he did a good deal better than I should have done, I fear. There *was*, however, a faint shade of fault-finding in his tone, and it brought a beautiful rosy spot on either cheek as his daughter replied:

"Why, father, I hurried the boys up all I possibly could, but I really could not *make* them bring the horse up any quicker, and I drove just as fast as ever the horse could go."

She glanced at me as she said this, feeling the same kind of pain, no doubt, that you or I would if you, my friend, were found fault with when you are first introduced, say, to the editor of one of your family papers. We soon learned that Mr. W. owned a horse that was in the habit of making the gravel fly, much after the disposition of its owner. We held our hats, and clung to the buggy-seat for fear of being bounced out; and when we stopped to look at interesting things the horse had a habit of starting without orders, as horses belonging to quick, nervous people, often do have. In fact, while in the zoological garden, one of our good bee-friends was knocked down and run over—only by the light buggy-wheel, however, just on account of this peculiarity. Let me digress enough to urge you not to permit horses to get into this habit of starting until bidden. It will pay you in dollars and cents to teach your horse not to move until you draw up on the reins, and tell him to go. Not only has money been lost, but also valuable lives as well, in this very way. You can teach the most spirited horse you own to stand until you tell him to go, if you will only take the pains, and you will save time by it in the end.

Friend Wyand's wonderful flow of pleasantry and good nature was somewhat checked by being late in starting. There, again, he is just like myself. A little thing of this kind will upset me for an hour or two unless I make a great effort to overcome it. At such times I need to say over and over again my little prayer, "Lord, help!" He took us first down to the wonderful Government Canal, a structure that cost over two millions of dollars, made on purpose to permit boats to go by the rapids on the Mississippi River. It has the usual arrangement of locks, like ordinary canals, but on a much grander scale. Steam-engines are employed to work the locks, and the machinery is of the most beautiful kind. I was not only greatly astonished but much amused to see friend Wyand address the Government officers as if they were men in his employ. In fact, I rather expected to see some of them resent his familiarity; but one of his comical smiles, after he had given one of his peremptory commands, made it all straight, and they went through all the operations, and explained every thing to me in a way that made me feel still as if I were at home, and among my neighbors. The Government Dry-docks were a wonderful thing to me—a place where they brought in great steamboats, and then let the water off so the carpenters could do necessary repairing. A little further on, we saw some beautiful rows of strawberries, and a man at work near them. Friend Wyand made this man stop his work on the other side of a field, and answer questions about the strawberries, at the top of his voice. Then we pulled around to friend W.'s home. He evidently had looked forward with pleasure to introducing your humble servant to the different members of his family; but he was somewhat vexed again to find not a soul at home. It was a beautiful day for outdoor work, and every one of them was busy somewhere. His whole premises on the top of the hill showed industry and hard work. He loves bees, fruit, and flowers as well as the rest of us. Pretty soon we stopped in front of a good-sized greenhouse. He made himself at home here too, and bossed the people around as if they were all working for him, just as he did before. I was greatly delighted to find a house heated entirely by overhead steam-pipes. The person in charge was a pleasant-faced woman, and I could have spent an hour in talking with her about plants, soil, new methods of heating, etc. She said they had recently taken out the pipes under the beds, and had placed them overhead, and were much pleased with the result.

Friend W. has taught me a useful lesson, and it is this: That one may go about among friends and neighbors, among business men and people, even among officers of the government, and may make them do every thing he asks, providing he has grace enough in his heart to keep up a vein of pleasantry and good nature to disarm all unpleasant feeling. This man captivates and makes friends by a sort of droll way. Perhaps he has cultivated it, and perhaps it is a gift of God largely—a gift that many of us might have, certainly, in a much larger degree if we would only strive hard for it—a faculty of seeing something pleasant, perhaps I might say in *every* thing, in all the duties of every-day life. It was on this account I was a little glad to see him tried by the delay of his horse and buggy. I did not want him to have trouble, but I wanted to see how far his native grace would bear him out in the hour of trial. I do not know whether he ever lets his temper come out, and scolds like fun, or not. I am sorry to say, that, with the amount of business we had on hand when I was there—that is, one kind of business, I did not find out whether he was a Christian or not. It may be I asked him the question—I hope I did; but if I did, I have forgotten what he said. It has occurred to me since, though, that this good friend of mine would have a wonderful power in bringing souls to Christ Jesus if this special gift of his were enlisted in the cause, and if his quaint smile and vein of pleasantry could all be laid *at the foot of the Master*. When I see a man with this gift I often wonder how he will "stand fire." When Satan brings all his artillery to bear, how long will he stand unflinching, and without being demoralized? Dr. Miller has a wonderful gift in this line. I asked him a few days ago whether he could go into business, real hard work, and keep that steady good nature constantly about him. I wanted to know how big a reserve he held back for cases of emergency. Mrs. Root has a great mania for large cisterns. When the masons and others ask her what in the world she wants a cistern *so big* for, she says she not only wants one that will hold water enough for *our* use during a dry time, but one that will bear drawing on for the neighbors. She says she never wants to tell a neighbor that they can't have all the *water* they have a mind to come after. Now, friends, it is not the cistern water *I* need, but it is grace from on high. I want a great big lot of grace—not only enough to keep A. I. Root going, but enough to give the neighbors all around—enough to give the children at home. Yes, if my good wife should ever be worn out by many cares, so that she needs a little help in that line, I am earnestly praying that God may give me this reserve force of grace to help her. Nay, further: May God give me grace in such unstinted supply that I can pour it out to you, dear readers, and not be impoverished. And what is it we want finally but the gift of the Holy Spirit? And have we not the promise? And this brings us to that verse I have loved to read over and over again:

> If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?

I wish to refer again to this matter of scolding before folks. Your children need exhorting; and they often need, perhaps, a severe reprimand; but do not do it on the impulse of the moment; do not do it from impulse at all. Do it from cool, steady principle, from a sense of duty. Only yesterday a man was slicing off wooden separators. One boy picked them from the machine, and laid them in piles of 25 each. Two more boys took these packages of 25 in long baskets to the dry-house, and piled them up with sticks between them, so they would dry out smooth and straight. The boys who were carrying them to the dry-house got a little ahead of the slicing. While they were waiting for a basketful they amused themselves by throwing splinters and spoiled separators on the large driving-belt. It was funny to see them whip around the pulley. The man who ran the machine was called away for a few minutes; and when he got back, some of these refuse pieces of wood were in the gearing, or large iron cog-wheels, throwing the belt off, and springing the main shaft. The boys said they were cleaning off the machine, and a handful of splinters fell into the gearing. They had been instructed, before going to work near the machine, in regard to the danger of being around such machinery, and had been cautioned to be very careful. They were certainly very much out of place in even throwing shavings on the belt—still more in cleaning off the chips and shavings while it was in motion. I reprimanded them pretty severely, but I did not feel quite satisfied that the whole truth had come out. The next morning, the smallest of the three boys came to me, saying that his conscience troubled him, and confessing that he not only put pieces on the belt, but he also put some in the heavy cog-wheels, to see it "chaw them up." This, you see, threw considerable additional light on the matter. Had I yielded to impulse I should have made the boys pay all damage caused by getting the machine started again. It seemed pretty hard, however, to ask the one who so frankly confessed his fault to do this. I decided to let the whole matter rest until I could see each one of the boys alone. I am now very, very glad that I did so. I am glad that, when I had time to think the matter over, I could see very clearly that the loss of time and money was but a small matter compared with the falsehood that seemed connected with it. I have been anxious to bring these boys to Jesus Christ; and after I had waited half a day I could keep this thought in mind far better than if I had spoken about it when I was provoked. I do not know even yet just where the truth does lie—that is, it is not very clear whether the shavings ran from the belt into the gearing, whether they dropped from the machine into the gearing, or whether some one of the boys put in so large a handful as to stop the machinery with a sudden shock, and spring the shaft. Many of you will doubtless say, "Mr. Root, I would not have such boys *anywhere on the premises*." Gently, gently, dear friend. I have tried boys by the hundreds, and these boys will certainly average as well as any of them. It is boy nature to try experiments, and have fun, especially when he has to wait for something. If I should turn them off and try others, I should have to go through the same experience in teaching others; and these boys have been with me for some time, and are getting pretty well taught. I don't think they will play with dangerous machinery any more.

Some years ago, when I had a store on the street up town, I came home from prayer-meeting and found several customers in the store, and nobody there to wait on them. The two clerks whose business it was to take charge had each left, presuming the other was there. One of them was a professor of religion, and the other was becoming quite a young skeptic. He claimed that church-members and professing Christians do not do any better—perhaps not quite as well—as those who make no profession. I was anxious that he should have plenty of proof to the contrary. But I was so vexed to find the clerks so indifferent to the plain demands of business, especially in the middle of Saturday afternoon, that I scolded—well, more than I knew, till I came to think it over afterward. It was the young skeptic I found first. He took it very meekly, and did not offer a word of apology; and when I afterward begged his pardon he said he did not try to make any explanation then, because he thought it would be better to keep perfectly still until I had "cooled off." I presume there was wisdom in what he said. He, a non-professor, showed more wisdom than his employer, who had just returned from *prayer-meeting*, and who did a good deal of exhorting. Whenever I see him or think of him, a feeling comes up, "Oh that I could have those few minutes back again to do over!" He accepted my apology, and said it was all right, and that, under the circumstances, he thought very likely I was excusable. But my conscience did not tell me so. He is not a Christian yet, and something seems to say to me that my words during those five or ten minutes may possibly stand in the way of his ever becoming one. I do not know whether he has ever told his relatives about it or not. They are very kind, good friends of mine. Very likely he had manliness enough never to repeat to anybody what I did say to him. Perhaps you say I am too sensitive—that a clerk who deserted his post at such a time *ought* to be severely overhauled. Dear friend, nobody has ever censured me for that act. It is only the *still small* *voice* that bids me let *reason* rule, and *not* impulse; that bids us all, in the language of our text, be "worthy of the vocation wherewith we are called, with all lowliness and meekness, with longsuffering, forbearing one another in love." The last caps the climax of it all. When you feel it is your duty to reprove, rebuke, or remonstrate, let me beg of you to do it in these words—"Forbearing one another in love."

Now may God's Holy Spirit help you, as it is helping me, to be slow, and to wait until you can use just the words, just the manner, and in just the *place*, that will count strongest for Christ Jesus.

CONVENTION NOTICES.

The annual meeting of the Ontario Bee-keepers' Association will be held in the city of St. Catharines Jan. 7 and 8, 1891. All interested are invited W. COUSE, Sec., Streetsville, Ont.

The Vermont Bee-keepers' Association will hold their annual meeting in the parlors of the Addison House, Middlebury, Vt., Jan. 28, 1891. J. H. LARRABEE, Sec'y.
Larrabee's Point, Vt.

The 8th semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at Montrose, Pa., Thursday, May 7, 1891. H. M SEELEY, Sec'y.
Harford, Pa.

The annual meeting of the Indiana State Bee-keepers' Association will be held in the Agricultural Rooms, State-house, Indianapolis, Jan. 16 and 17, 1891. G. C. THOMPSON, Sec'y.
Southport, Ind.

The annual meeting of the Ohio State Bee-keepers' Association will be held in Toledo, Ohio, on Tuesday and Wednesday, Feb. 10 and 11, 1891. Full particulars as to railroad and hotel rates, and place of meeting, will be given later. Let all interested in bee-keeping make an extra effort to be present.
Bedford, O. MISS DEMA BENNETT, Sec'y.

The Nebraska State Bee-keepers' Association will hold its annual convention in Nebraska Hall, State University, Lincoln, Jan. 13—15, 1891. Take a receipt from your home agent, and have it read, "To attend horticultural association," which meets at the same time, and this will entitle you to a return ticket at one-third fare. J. N. HEATER, Sec'y.
Columbus, Neb.

The 22d annual meeting of the New York State Bee-keepers' Association will be held in Agricultural Hall, Albany, N. Y., Jan. 22—24, 1891. Reduced railroad rates. Pay full fare to Albany, and we will give you a return certificate over any road coming into Albany (except the Boston & Albany) at one-third the regular fare. A cordial invitation is extended to all. Come, and bring your friends with you. A complete program will be published as soon as completed.
G. H. KNICKERBOCKER, Sec'y.

The Eastern Iowa Bee keepers' Association will meet Feb. 11 and 12, 1891, in Maquoketa, Iowa, at the Dobson Town-clock Building, to commence punctually at 10 A.M. There will be a large turn-out of the prominent bee-keepers of the State. There will be a question-box, free to all, in which any question that you wish discussed can be presented and answered. Let all be on hand, and bring in your report for 1890, spring count, or from May 1. The people of Maquoketa kindly furnish us a free hall. FRANK COVERDALE, Sec.

PRICE LISTS RECEIVED.

J. G. Kundinger, Kilmanagh, Mich., sends us his 24-page list of apiarian supplies.

C. P. Bish, Grove City, Pa., has published his annual catalogue of bee-keepers' supplies.

We have printed for Jenkins & Parker, Wetumpka, Ala., a 60-page list of every thing pertaining to apiculture.

A COMPLIMENTARY NOTICE OF GLEANINGS.

THE editor of the *American Bee Journal* gives us the following very kind notice in his journal, page 820:

> We congratulate Brother Root upon the fact that GLEANINGS has reached, and even passed, the ten thousand circulation, which it set out to do some months ago. GLEANINGS richly deserves this mark of public favor, for it is beautifully printed and carefully edited. If the reader desires to take another bee-periodical besides the *American Bee Journal*, we shall be pleased to send it and GLEANINGS for $1.75 a year, or both these and the *Illustrated Home Journal* for $2.15. This is a rare opportunity to secure three good periodicals for about the regular price of two.

As we have before stated, we make the same club rates—that is, the *American Bee Journal* and GLEANINGS for $1.75, or both and the *Illustrated Home Journal* for $2.15.

EDITORIAL.

The discretion of a man deferreth his anger; and it is his glory to pass over a transgression — PROV. 19: 11.

STRAY STRAWS is no longer an experiment. "It takes," and we're going to make it lead off.

THE NEBRASKA BEE-KEEPER.

THIS is the title of a new bee-journal, edited and published by Stilson & Sons, York, Neb. It is issued monthly, and contains 12 pages and a cover. Its general appearance and make-up are good. The price is 50 cents per annum.

THE MICHIGAN BEE-KEEPERS' ASSOCIATION.

BY some inexcusable oversight on our part, we omitted to give notice of the State convention, to be held in Detroit, January 1 and 2. This notice will hardly be in time to be of any use; but its non-appearance can not be attributed to the secretary, Mr. Geo. E. Hilton. The senior editor will be present.

THE BEE-KEEPERS' REVIEW.

THE December issue of that sprightly monthly is now on our table. It is enlarged to 28 pages, with a tinted cover. The price is $1.00 per annum. The frontispiece, or the design on the cover, is superb, and Mr. Hutchinson is to be congratulated upon the fine appearance of his paper as well as the general excellence of its subject-matter.

MORE ROOM.

WE find that the demands upon our space are excessive; and for the present, at least, we have decided to make all answers or "foot-notes," as they are called, and editorials, solid, like the correspondence. This will give us over one whole extra page every issue, or one whole extra issue during the year. For distinction, foot-notes will always be put inside of brackets.

LIFE-MEMBERSHIP IN THE N. A. B. K. A.

BRO. NEWMAN, of the *American Bee Journal*, says that it is ten years since he paid the fee of $10.00 for life-membership in the N. A. B. K. A., and he says: "We already have our money back in annual fees for the $10.00." The following is the present revised list.

D. A. Jones, Beeton, Ont.
Thomas G. Newman, Chicago, Ill.
A. I. Root, Medina, O.
E. R. Root, Medina, O.
J. T. Calvert, Medina, O.
Charles Dadant, Hamilton, Ill.
C. P. Dadant, Hamilton, Ill.
Eugene Secor, Forest City, Ia.
Dr. C. C. Miller, Marengo, Ill.
O. R. Coe, Windham, N. Y.

Remember that, after becoming a life-member, you are not necessarily obliged to attend the meetings; but you do thereby give the society a big leverage for the accomplishment of much good to bee-keepers.

CASH COMMISSION TO LOCAL AGENTS.

To any one who will take the trouble to canvass his neighborhood, and call the attention of bee-men, by *personal interview*, to the merits of our journal, we will allow a cash commission of 25 cts., providing that all names so obtained are taken for not less than $1.00, and that he does not advertise for less than that price. No one can be agent unless he can send in at least one name besides his own; in this case, $1.50 pays for the two names. At least *one-half* of the names must be new.

THE COMBINATION HIVE.

A NEW bee-journal, under the caption of *The Queen Bee*, is just out. It is edited by E. L. Pratt, Beverly, Mass. In the editorial leader the Combination hive is described as simply the Dovetailed hive with an outside winter-protecting shell, or Alley winter case. Bro. Pratt speaks very highly of both, and the two he calls the Combination hive. He says: "We are all aware that the New Dovetailed hive is a well-made, cheap, and excellent hive, but is not adapted to wintering out of doors in cold climates. We have adapted the Alley case to this hive, and can guarantee them perfect winterers when arranged in this manner."

MEDALS OF AWARD.

There has been, for a couple of years back, a provision in the constitution, entitling affiliated societies in the North American Bee-keepers' Association certain privileges, among which was, that said societies shall be entitled to the services of a judge to award premiums at bee and honey shows, and that they shall also be entitled to receive two silver medals, to be offered as prizes, open for competition to all their members. So far, the national organization has conferred neither of these privileges. While on the sleeper, *en route* for Chicago, just as we left Keokuk, this matter was brought up by Mr. R. McKnight. One of the executive committee of the society was present, and a couple of the ex-presidents—Mr. T. G. Newman and Dr. C. C. Miller. We all admitted this matter had been overlooked so far, and that something ought to be done. After consultation, the executive-committee man present (E. R. Root) agreed to bring the matter before the other officers, and the same is now under consideration for more definite action for the future.

IS THE USE OF FOUNDATION PROFITABLE TO THE BEE-KEEPER?

ON page 213 of the *Bee-keepers' Review* for Dec. 10, friend Hasty uses the following words:

> "The foundation business is a big business; and it would be reduced very seriously if the truth were generally known."

There is more on the same subject, but the above will be sufficient. I fear that friend Hasty has been staying at home so long he is becoming a little "hasty." I trust, however, he is not getting *uncharitable* as well, toward his fellow bee-keepers. Had he been present at the Keokuk convention he would certainly have written differently. I expressed a fear at that convention that bee-keepers were purchasing and using more foundation than was really profitable, and I asked the president to call for a large number of rising votes on the matter. I expected that many present would give us facts to show that so much foundation is not needed. Now, I hope that friend Hasty will believe me, even if some who do not know me so well will not, when I say that I have felt really troubled to see orders come in, especially during the past season, for such enormous quantities of foundation, especially for the brood-chamber. I like to do business where I can furnish my fellow-men with something they *really need* and that will be to them a profitable investment; but when it becomes necessary to keep the *truth* from being generally known, in order to push sales, *I do not want to do business any longer*. If friend Hasty is better prepared to give us the truth in regard to the matter than were the veterans at the above-mentioned convention, I will gladly give him space in GLEANINGS, and also pay him well for his time in writing it up. I can not believe that our journal would have reached its present circulation, nor our business its present magnitude, were it true that myself or any in my employ had tried to build up business by repressing the truth in regard to the things we have to sell. Ever since foundation began to be used by bee-keepers, there have been certain prominent writers who have been experimenting and writing to the effect that it does not pay to use it largely; and the matter has been under experiment and close scrutiny for at least ten or fifteen years. Our friend Doolittle has been prominent in this line. Now, if it is not profitable, especially for *novices* in the business, to invest so much money in this commodity, by all means let us have the truth out before another season opens.

A SIMPLE WAY OF GETTING AN ADJUSTABLE SPEED ON PRINTING-PRESSES OR OTHER MACHINERY.

THE ordinary way of doing the above is by countershaft and cone pulleys. One of our boys, however, three or four years ago, arranged a belt-shifter, so that he could, with his foot, throw the belt partly from the loose on to the tight pulley. By holding this belt-shifter where he placed it with his foot, he found he could get a very slow speed, and gradually increase it at any given point, clear up to the full normal speed of the press, simply by sliding the shifter a little further. We recently purchased an Armory press—a good deal larger than the one alluded to above; but he succeeds just as well in regulating the speed of this large press by the same cheap and simple device. In fact, his invention, if so it may be called, has saved us a set of cone pulleys that would have cost us $27.00, and the cheap arrangement is much simper and easier. One advantage is, that a green hand may run the press very slowly, while he is learning to feed, and then he can gradually give it a little more speed as his skill increases. I have wondered why this arrangement has not been used and mentioned before. If it has been, I have never heard of it. I invite the attention of our typographical periodicals to this labor and money saving device.

BURDENSOME NOMENCLATURE; GIVING CREDIT IN A NAME.

MR. HEDDON wishes to know why we do not give him credit by calling the Dovetailed the Dovetailed-Heddon hive. In the first place, it would make confusion with the *New* Heddon hive. More than that, to be fair to others we should have to call the hive the Langstroth-Blanton-Heddon-Danzenbaker-Hoffman-Hall Dovetailed hive. Life is too short to go through with all this. When the hive was brought out we gave credit to all four of the first named; and would any of our customers desire us to hitch on such a long-tailed appellation? We borrowed as much from Mr. Blanton and Mr. Danzenbaker as from Mr. Heddon, and more than all from Mr. Langstroth. Surely Langstroth's name should be attached if any. Every feature of the hive is old, and we do not claim for it any novelty in invention. The *dovetailing* has been in use for twelve years in hives, and the new hive itself is simply a combination of the old features that bee-keepers recognize and demand. In this connection I have always thought that the name of a well-known article, the Bingham & Hetherington uncapping-knife (a most excellent tool, by the way) was too long for convenience. Again, there used to be a hive sold which bore the name "VanDeusen-Nellis Simplicity Hive." It is a great convenience to use *short* names; and as we can't very well give credit to *all* in a name, why give credit to *any?* A *short* name which shall indicate some predominant or striking feature has preference and utility.

E. R.

TAKING A PARTNER.

In our work of following and studying the habits of many thousands of individuals on our ledgers, as the years pass by we learn many lessons. For instance, we see a young man starting in business, and we rejoice to see him steadily, year after year, build up a name for being prompt and reliable. We have also chronicled others who have their ups and downs, and a *few* who seem to be always in trouble. There is another class who start right, and do well for a time, but they have evidently become weary in well doing, and finally go all to pieces; and this latter class is what prompts this editorial. A good many, when they begin to get uneasy, or perhaps feel cramped for the time being, take in a partner, when the amount of business does not need any partner at all, but just the contrary. In fact, we have had so many letters telling sad stories as a consequence of going into partnership, that I have felt prompted to give this warning. When you take somebody in as a partner, you *trade off* a part of your *good name*—at least, you place it in somebody's power to spoil the good name you have worked hard for, for years. And a great many times, like partnership in bees, or bees on shares, both parties feel so sure they have each been swindled by the other, that they stick to it for the rest of their lives. When you have a great business—more than one man can control—it *may* be best to go into partnership. But even then I think it is far better to *first* employ your contemplated partner at a salary. When you have proved by experience that you can work together in harmony, then, but not before, go into partnership. By the way, why not make your *wife* a partner—yes, and children too? Friend Terry most earnestly enjoins *this* sort of partnership in his talk at farmers' institutes. Now, remember Uncle Amos "told you so."

SHALL PERIODICALS BE CONTINUED AFTER THE TIME PAID FOR?

It seems to me, dear friends, that there has been a great deal of useless discussion in regard to this matter. Most things of this kind are settled on the rule of the greatest good to the greatest number. Now, we can not decide what other publishers ought to do; but as we have found that at least nine out of ten of our subscribers prefer to have Gleanings kept going, we think we secure the greatest good to the greatest number by so doing. The tenth friend can easily be accommodated in two ways. First, he can say, when subscribing, "Send it only so long as the money pays for it." If he does this, and the publisher disobeys orders, he does it at his own risk, for he can not collect pay for sending it longer. If, however, this tenth brother omits or forgets to say any thing about stopping when he subscribes, and wishes to have it stopped, he can do so by writing on a postal card, "Please discontinue Gleanings." That will stop it. A good friend writes us that people are sometimes wronged in this way: Somebody makes you a present of a certain periodical. If the publisher keeps right on sending it, this friend is called upon to pay for something he never ordered at all. What shall you do in such a case? Well, I should say it is the publisher's loss if he continues to send his paper to anybody who never ordered it at all. The principal reason why we have been induced to send Gleanings longer than the time paid for is this: A great part of our readers mean to have Gleanings kept going; but they neglect, and put it off, and then in the same way neglect and put off having it started after it has been stopped. Such people always thank us very kindly for having it kept going without orders—that is, they do when they get around to it, say when they are ordering bee-hives or something of that sort. The world is full of people who neglect and put off things they *meant* to have done. Now, this weakness of humanity is a large and prevailing element in all kinds of business. Please note: If we stop the paper for everybody at the time paid for, this weakness harms the publisher and harms the subscriber; but by keeping the paper going until we have *orders* to stop it, this same unfortunate element is then on the other side of the scale. It then operates to the advantage of both publisher and reader. The only trouble about it is, the man who does not want the paper any longer must *say so*. If he continues to take it out of the office, and does not say so, the law, and it seems to me good common sense, dictates that he must pay for it. I omitted to say, in the proper place, that he does not even need to take the trouble to write a postal card. Let him just leave his journal in the office, and inform the postmaster that he does not wish to take it any more. The postmaster is then required by law to inform the publisher that so and so does not want the periodical any longer. So in reality *no one* is obliged to pay for a periodical unless he takes it out of the postoffice regularly; and exactly the same way you would be required to pay for any kind of goods you take regularly of the common carrier. If you or any of your family take a pint of milk of the milkman every day when he comes past your house, you are bound to pay him for it; and I believe it does not matter whether you ordered it or not. If you receive it out of his hands, you are responsible for its value. I have several times thought of mailing a postal card to each of our 10,000 subscribers, this postal card to be plainly addressed to us. On the opposite side we would have printed in large letters, "Do you want Gleanings continued?" All that our negligent friends will have to do in that case will be to write "yes" or "no" opposite the question; then we could go ahead with a fair understanding all around, and we should have all orders in black and white. The difficulties are that it would cost over $100 for the postal cards. Then it would cost over another hundred to place them in the hands of our readers, besides the large amount of laborious work on the part of our clerks and book-keepers, and very likely nearly half of our postals would never get dropped into the postoffice at all. But we do this, which is the next best thing to it: In every expired journal is put a circular letter, together with an order-blank and an envelope addressed to ourselves. The circular letter gives notice of expiration of subscription, and says, if you want the journal continued, fill out the blank and inclose it with one dollar in the addressed envelope. If you desire to have the journal stopped, write on the blank, "Please discontinue." If no notice is taken, the journal is continued, and in three months' time another notice is sent. If that doesn't "fetch 'em," another, in the course of time, is sent; and if still no response, we stop the journal, and send another notice to that effect, with a request to remit for the time not paid for. If our dropped subscriber still won't pay any attention, we don't trouble him further, as we do not care to waste more time. If we can afford to drop it there, he surely can.

productive, and an excellent pea in every respect, except that the pods look ready to pick before the peas inside are large enough to amount to any thing. If you pick them when they LOOK plump and full you will disappoint your customers, and have trouble. Get careful pickers; tell them not to pick a pod until they know by squeezing it that there are good-sized peas inside, and you will then call it, as we do, ahead in QUALITY of any other EARLY pea in the world.

American Wonder. ½ pt. 10c; pk. $1.75.
This is a cross between the Champion and the Little Gem. The vine grows from 6 to 8 inches high. It is the first to ripen among the green wrinkled sorts. On account of its dwarf habits it can be grown very easily under glass.

Stratagem. ½ pt. 10c; qt. 35c; pk. $2.00.
This has made its way rapidly in public favor. It is not only of rare excellence in quality, but the pods and peas are so large and fine looking they call attention at once from any thing else in the market. It has given us excellent satisfaction.

Champion of England. Pint, 15c; pk. $1.00; bushel, $3.50.
So well known as to need no recommend here.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Spanish Pepper. Oz. 25c.; lb. $2.50.
A new variety, so large that the natives of warm climates slice them up and fry, as an article of food.

Bullnose. Oz. 25c; lb. $2.50.
A larger variety than the above, but in every other respect the same.

Cayenne Pepper. Oz. 25c; lb. $2.50.
Much calle or, for seasoning soups, pickles, etc.

POTATOES.

Early Ohio.
The Experiment Station, Columbus, O., says there is nothing earlier.

Early Puritan.
Nearly as early as Early Ohio, and much more productive. Highly recommended by our Ohio Experiment Station. Prices: 1 lb. by mail, 25c; 3 lbs. 60c; 1 peck by express or freight, 50c; 1 bushel, $1.50.

Lee's Favorite.
This is a few days later than the foregoing, but yields better still. In our locality during 1889 it gave us over 100 bushels, from one-fourth of an acre.

Beauty of Hebron.
This is preferred by Terry because it gives as good, or better yield than any other, and comes off early enough to admit of getting in wheat in good time. It is a standard early sort.

Monroe Seedling.
Here is what T. B. Terry says in regard to them:

> Last season we had more perfect tubers in a bushel than I think I ever saw in any other variety of potatoes. They are strong growers, and do not sprout early; better quality than most late potatoes. I have returned 42 orders in one day since they were all sold. T. B. TERRY.
>
> Hudson, O., Oct. 22, 1890.

Prices of any of the above: 1 lb., by mail, 18 cts.; 3 lbs., 50 cts.; 1 lb., by express or freight, 7c; 1 peck by express or freight, 60 cts.; 1 bushel, $2.00. Barrel, $5 00. If potatoes are ordered in the winter, we will do our best to protect them from frost, but purchaser must take all risk.

Potato-eyes. Any of the above varieties by mail postpaid, 15c for 10; or $1.00 per 100.

PUMPKIN.

Early Sugar Pumpkin. Oz. 5c; lb. 50c.
This was selected from 13 different kinds of pumpkins. They aro specially designed for the first pumpkin pies of the season. Our strain of seed has been heretofore a good deal mixed. Last fall we had, however, a patch of many hundred, without a single large pumpkin in the lot. They are much earlier than the ordinary pumpkin, sweeter for pies, and so small in size that we sold them all along in the fall at the rate of two for a nickel. In many places people will pay more for early pumpkins for pies than they will for any kind of squashes.

Connecticut Field. ½ pint, 5c; quart, 15c; peck, 75c; bushel, $2.00. If wanted by mail, add at the rate of 16c per quart for postage.

RHUBARB.

tt's Victoria. Oz., 10c; lb., $1.50.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 10c; lb. $1.00.
This is the radish that Vick gives such a beautiful chromo of in his catalogue for 1888; and for forcing in the greenhouse, it is ahead of any other in the way of forcing radishes. They begin to form a bulb almost as soon as the second leaves come out. They are very hardy, and of exceedingly rapid growth.

Wood's Early Frame. Oz. 5c; lb. 50c.
The very best long radish for raising under glass, or for extra early.

Beckert's Chartier Radish. Oz. 5c.; lb. 50c.
A novelty, and one that has given us the greatest satisfaction; of rapid growth and good size, both at the bottom and top. In favorable soil it will grow to a large size, and still be excellent in quality. They are remarkably certain to make a good bulb.

Chinese Rose Winter. Oz. 5c; lb. 50c.
These not only stand cold weather until toward Christmas, but we consider them really a most delicious radish, and the most free from being corky, of any radish known. They are not as strong as radishes ordinarily are, but are of a sweet turnip flavor. Usually sown at the time we sow turnips.

SALSIFY, OR OYSTER PLANT.

New Mammoth. From Sandwich Islands. Oz. 10c; lb., $1.50.
We have grown this side by side with the common salsify, and we find the roots larger, better shaped, and equally good in other respects; they are, therefore, without question an improvement. Finely grown specimens are almost as large and smooth as parsnips.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 25c.
It combines as many of the good qualities as any other.

SQUASH.

SUMMER VARIETIES.

Golden Summer Crookneck. Oz. 5c; lb. 50c.

Giant Summer Crookneck. Oz. 10c; lb. $1.00.
This squash is as early as the ordinary crooknecks, and in every way equal; but are of such size that one squash will make a dinner, even when soft and tender; and one good thrifty plant will almost supply a family.

WINTER VARIETIES.

Hubbard. Oz. 5c; lb. 60c.
Too well known to need comment. We have tried nearly all the new squashes, but have not yet found a better one.

TOMATO.

Golden Queen Tomato. Pkt., 5c; oz., 25c; lb., $3.00.
This is no special novelty, that I know of, over other tomatoes, except its beautiful golden yellow color; but at the same time the tomato is good-sized, and remarkably smooth and regular. The quality is equal to any. Many specimens of the fruit have a rosy tint toward the blossom end, giving it something the appearance of a beautiful yellow peach with a slight blush of red.

Ignotum Tomato. ¼ oz. 10c; oz. 30c; lb. $3.50.
During the year 1889 we sent out about 3000 sample packages of the Ignotum tomato; and the general testimony of those who have grown it corroborates the decision of the Michigan Agricultural College, that it is, all things considered, the best, and they gave it a test side by side with over 100 different varieties. It has no rival that I know of in size, except the Mikado. There are, however, several kinds (among them Livingston's Beauty) that are rather handsomer in shape, but they are behind in size and earliness. In solidity the Ignotum is behind none; and for slicing up for the table we have never found any thing better.

Livingston's Beauty. Oz. 20c; lb. $2.00.
This is a production of the same Livingston who brought out the Acme, Trophy, Favorite, and Perfection; but he pronounces this superior to them all. They are better shaped and smoother than the Mikado, but not so large.

Pear-Shaped Tomatoes. Oz. 20c; lb. $2.50.
These are handsome for pickles and preserves. They are immense bearers, and of good quality.

TURNIP.

Extra-Early Turnips.

We have tested some of these which are advertised in the different seed catalogues; and while we find them some earlier than the staple turnips, they are, so far as we have tested them, inferior in quality, very strong in trste, and sometimes bitter.

Purple-top White-globe Turnip. Oz. 5 c.; lb. 40 c.
This turnip has given us the best results of any thing we tried; the quality seems to be unusually fine for table use, especially when they are about as large as fair-sized apples. They grow nearly as quick as any other turnip known, and are very handsome. When washed they are almost as white as an egg, with a beautiful purple around the top. They are smooth and round.

Yellow Aberdeen. Oz. 5c; lb. 40c.
We consider this one the best table turnip grown. When cooked it is so yellow that it will sometimes be mistaken for squash.

Breadstone. Oz. 10c; lb. $1.40.
During the past season this turnip was so much superior to any of the Swede turnips for table use, that those who ate them at our lunch-room came to me not only for turnips, but for seed to sow next year. The flesh is yellow, and the quality exceedingly rich and delicious.

White Egg. Oz. 5c; lb. 40c.
Very showy and handsome, as well as quite early, and fine quality. In 1890 they sold for 10c more a peck than the Purple-top Globe.

Southern Prize. Oz. 5c; lb. 50c.
For many years I have wondered if it were not possible to get a real turnip as strong growing and as hardy as the Seven-top. This we have finally secured, in the "Southern Prize." It stands all winter, even in Ohio, without protection: and, in fact, it seems to GROW all winter; and, best of all, it has a good-sized bulb (of fair quality) that winters over as completely as a parsnip.

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SPECIAL NOTICES.

BROOD FRAMES WITH TOP-BAR DIVIDED.

Instead of fastening comb foundation to the wood comb-guide, some prefer to have the top-bar divided vertically, and place the sheet of foundation between the two sections; drive three or four one-inch nails through, and the foundation is secure. We can furnish thick-top Hoffman or closed-end frames, with divided tops, without extra charge, if mentioned in the order. Of course, no comb-guide will be included with these frames.

REMNANT PIECES.

Some six months ago we advertised some remnant pieces, 11 inches long by 2¾ wide by ¼ thick, planed on one side, at 25c per 100. They went off like "hot cakes," and were soon gone. We have since accumulated quite a good many more, which we offer, as long as they last, at the same price. If any of our readers have use for such pieces, here is a chance to get them cheap.

DISCOUNT FOR EARLY ORDERS.

A discount of 3 per cent is being allowed on all orders for goods listed on pages 10 to 27 of our new catalogue, received before Feb. 1st. During February, 2 per cent is allowed; after that date, no discount. Quite a number are availing themselves of the discount; others would do well to do so also. If any of our readers in Southern California intend to take advantage of carload rates of freight they must send their order at once, as the car we are now making up will start about Feb. 1.

5% DISCOUNT ON WIRE NETTING TILL FEB. 20.

By advice just received from the manufacturers of wire netting and fencing we are able to offer you a special discount of 5 % on the new prices in our Jan. 1st catalogue, until Feb. 20th. This is an inducement offered to get as many orders filled as possible before the rush of spring orders begins, and many should avail themselves of it. Send for our 20-page netting and fencing catalogue, and remember that on all orders received by Feb. 20th, an additional discount of 5 % may be deducted as well as those given on the discount sheet sent with the catalogue. This special 5% may be deducted also from the list of remnants on another page, for orders before Feb. 20th.

A NEW EXPRESS COMPANY IN MEDINA.

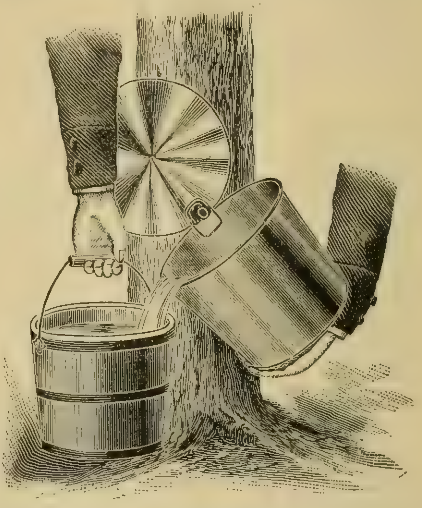
Trains have been running on the P., A. & W. from Medina west since Jan. 1, and the United States Express Co. has been doing business since the 10th. Connection has not yet been made from here east to Akron, but it will soon be completed. We are now able to send your express shipments by either the American or United States Exp. Co's; and if you have a preference, please state it in your order, or fill out the blank on the order sheet, telling what express company does business at your office, and we can decide which one to give the business to in order to secure you the best rates.

WIRE CLOTH FOR PROTECTING FRUIT-TREES.

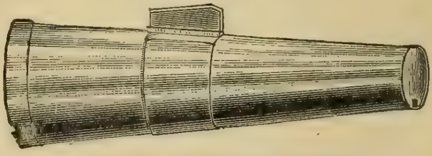
One of the men in our packing-room, Mr. H. A. Horn, who has a little place of his own, and raises fruit, tells me that young trees can be perfectly protected from rabbits, etc., by the use of our cheap wire cloth, so that the wlole expense, including labor and material, will not cost over a cent and a quarter per tree. Get the cheapest green wire cloth—even remnants will do. Cut it into strips 2 inches by 2 ft., or as near it as you can without much waste. Take one of these strips and wind it spirally around the tree from the ground up. No string, wire, nor any thing of the kind, will be needed to make it keep its place. Wind it on snug, and squeeze the last end closely around the tree with your hand, and it will stay. As the tree grows, the wire cloth will stretch as long as the protection is needed. He says he protected 250 trees in just two hours and a half. The cheap remnants offered in our table are just as good as any for the purpose.

SUGAR-MAKERS' SUPPLIES.

Maple-sugar-making time is at hand, and some are inquiring the price of supplies. First, you should supply yourself with that excellent book by Prof. Cook, "Maple Sugar and the Sugar-Bush;" price 35 cents; by mail, 38c. By studying this you may save many times the price of it. Notwithstanding the advance in the cost of tin, we are able to offer you sap-buckets and spiles and cans at last year's prices, as below:



Above cut shows a bucket hung on wire loop, with hinged tin cover, and manner of emptying.



IMPROVED RECORD SAP-SPOUT.

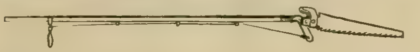
Record sap-spouts, $1.00 per 100; $8.00 per 1000.
10-qt. buckets, IC tin, $15.00 per 100; IX tin, $17.00.
12-qt. buckets, IC tin, $16.00 per 100; IX tin, $18.00.
Patent hinged covers, $6.00 per 100. Reversible wood covers, $4.50 per 100. Wire loops for wood pails, 30c per 100: for tin pails, 25c per 100. 1-gal. square cans, 50 or 100 in a crate, $12.00 per 100. Boxed 10 in a box, for re-shipment when filled, $1.50 per box; $14.00 for 10 boxes.

BACK NUMBERS OF GLEANINGS CHEAP.

We have quite a large quantity of old back numbers of GLEANINGS, containing much valuable reading-matter. As our list of readers is constantly growing larger, there are no doubt a good many who have been readers but a comparatively short time. If any of these desire to use these long winter evenings by reading up on the subject covered by GLEANINGS, here is an opportunity to get a good deal of reading-matter for a small amount. We can send you a large variety of back numbers, no two alike (unless you are not particular, and want to use them for distribution), at one cent each, in lots of 10 numbers or more, by mail postpaid, or by freight with other goods, as you choose.

FRUIT-TREE PRUNERS.

It is time you who have fruit-trees were preparing to prune and trim them, ready for next season's crop. Authorities differ on the best time for pruning; but it is generally conceded that it is better to prune any time than not at all. Probably more pruning is done in February and March than any other time of year.



SMITH'S COMBINED PRUNING SHEARS AND SAW.

Above we show a very convenient tool for pruning. The shear is used for cutting off small limbs up to about ⅝ inch. For those larger, the saw is used. The regular price is $2.00; but we will sell samples, to introduce them, at $1.50; or to those who will canvass their neighborhood we will make a special price of $13.2 per doz., net, cash with the order. The handle is 6 ft. long. A single one will go best by express; ½ dozen or more, by freight. If any prefer to furnish their own poles we will send them for 10c each less without the pole. A little pamphlet of instructions about pruning is included with each machine, and they are all sharpened ready for use when you get them.

PRICE OF COMB AND EXTRACTED HONEY.

We have received only a few orders for honey since our quotations of a month ago. This is largely due to the holiday season; but it has occurred to us that may be we make too much difference in the price of large and small quantities; we therefore make revised quotations as follows:

No. of cases of two 60-lb. cans.	Less th'n 2	2 to 5	5 or more
White Sage, extracted, liquid......	10	9	8½
Light Amber, " candied s'l'd	9	8	7½
Amber, " "	8½	7½	7
No. 2 amber, " "	8	7	6½
Choice white comb honey, 1-lb. sec.	19	18	17½
Good " " " " "	18	17	16½
Fair " " " " "	17	16	15½
Dark comb " " " "	16	15	14

The same grade of 2-lb. sections, 2 cents per lb. less than 1-lb. Some seem to be afraid to order comb honey during cold weather. In lots of 5 cases or over, we put it in a crate with straw in the bottom, and handles to carry it by, so that it can not be roughly handled. The 1-lb. sections are in 12, 24, and 48 lb. cases. The price quoted above is on 24-lb. cases. Two 12-lbs. will count one, and one 48-lb. counts two toward the quantity price. Samples of any grade of extracted honey mailed free to intending purchasers, so that you may not be disappointed in what you are getting, but may know exactly what it is before ordering. Those who haven't sufficient honey to supply their own neighborhood will do well to supply themselves. We had a letter from a pioneer in the business of peddling honey among consumers, which we are not allowed to print. We can not forbear to say in this connection, that he, with two helpers, bought and disposed of enough honey in about 3½ months to clear $2500. He got a large part of his supply from us, and praises the white-sage honey very highly. Some of our readers who have the time might be improving it to their profit in the same way during these winter months.

1891. EARLY ITALIAN QUEENS from bees bred for business. Try my strain of 7 yrs. breeding. The extra honey stored will more than pay her cost. Each $1.00: six, $4.50. Ready in May. If you prefer, order now and pay when queens arrive.
W. H. LAWS,
2tfdb Lavaca, Sebastian Co., Ark.
☞In responding to this advertisement mention GLEANINGS.

NEW SPACERS for L. frames; accurate, 1¼, 92 to the pound. Fully practicable for frames in use. Prices, 1 to 5 lbs. at 16c; 5 to 10 lbs. at 15c; 10 to 25 lbs. at 14c. Send stamp for sample. Address G. L. TINKER, New Philadelphia, O. 24-1-2d

WANTED.—To exchange hand-made crayon Portraits, 18x22 size, for 100 lbs. good honey. Satisfaction guaranteed. Send your photo. to 2-3-4d
J. M. WELLS, 1552 Monsey Ave., Scranton, Pa.

STORE AND APIARY FOR SALE.

Store finely situated for doing good business. First-class apiary of 150 colonies of choice Italians. Every thing necessary for getting the best results in extracted honey—bees in self-spacing hanging frame hives. Also two Bee-Wagons, Honey-Extractors, Wax-Extractors, Honey-Kegs, one Given Foundation-Press with two sets of dies, one large Store-House near bee-yard. Two good boats, with interest in boat-house on lake. For particulars apply to
C. G. FERRIS, Miller's Mills, N. Y.
2tfdb Please mention this paper.

THE BEE WORLD.

The **Bee World** is published monthly at 50c per year. It is **devoted** to collecting the **latest NEWS**, inventions, and discoveries throughout the bee-keeping world. If you want to keep **posted**, you cannot afford to **do** without it. **Subscribe now**. Sample copies free.
27d Address W. S. VANDRUFF, Waynesburg, Pa.
☞In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY
PROF. A. J. COOK,
AUTHOR OF THE
BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✻ ILLUSTRATED.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, Ohio.

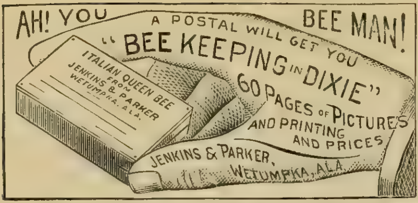
KIND WORDS FROM OUR CUSTOMERS.

HAND CULTIVATORS AND SEED-SOWERS.

The "Special Department for A. I. Root" is the most interesting part of GLEANINGS for me now. I wish he would tell what he knows about the Planet Jr. tools. in that department, soon. It may interest others as well as me. Will the drill sow beets, carrots, parsnips, and radish seed, and drill peas evenly? Are the other tools practical? They cost too much to buy and not use them. I have been doing all my sowing by hand. It is taking too much of my time. I should think the cultivator would take a good bit of strength to push it.

Butler, Pa., Jan. 1. J. J. SHANOR.

[Friend S., we are special agents for all the Planet tools; but for all that, I will try to answer you without bias. The Planet seed-sowers, we regard as the best of any thing there is in the market; in fact, it is the only seed-sower I know of that will sow every thing, and never get clogged or make a failure; at least, we have never had such a thing happen. The hand cultivators, like all other tools to be worked by hand, need considerable strength unless your ground is in very nice order. Where there is ground enough, and your rows can be far enough apart, I would by all means use a horse. For uneven ground, or for ground that is not thoroughly pulverized, a wheel-hoe with a larger wheel we find easier to manage. We are using one made by one of our bee-friends. It has a wheel perhaps 2½ feet across, that we like better than the Planet tools, but only on account of the larger wheel. The tool mentioned is made by G. W. Cole, Canton, Ill., who expects to advertise it in our next issue.]


AH! YOU BEE MAN!
A POSTAL WILL GET YOU
"BEE KEEPING IN DIXIE"
60 PAGES OF PICTURES AND PRINTING AND PRICES
ITALIAN QUEEN BEE FROM JENKINS & PARKER WETUMPKA, ALA.
JENKINS & PARKER, WETUMPKA, ALA.

☞In responding to this advertisement mention GLEANINGS.

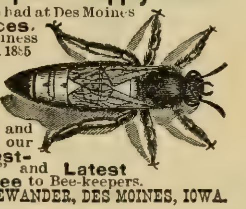
NOW SEE HERE!

Friends, I have three **new varieties** of **Potatoes,** originated by me, which were **highly recommended** by the Michigan Agricultural College in 1889; and to every person ordering their queens now, either **Five-Banded Golden** or **Imported Italians**, and sending **cash with order,** I will give 5 eyes, my choice of variety, for an order for a **warranted** queen at $1.00, or 3 eyes of each variety, on an order for a **tested** queen at $1.75; and to those who send cash or money order I will include one or more packets of seeds **free.** Queens are to be sent in June or July; potato-eyes and seeds in April; and to the person growing the largest potato, I will give one 3-frame nucleus on each variety, with a $5.00 queen; and to the person suggesting the most acceptable names I will give a 3-frame nucleus for each variety of either strain of bees, with a $5.00 **queen.** Suggestions for names are to be here by Aug. 15, and premium bees will be sent in time for the fairs. Only a limited number will be given **free**, and first come first served. Send stamp for catalogue, ready Feb. 15.

JACOB T. TIMPE,
Grand Ledge, Mich.

☞In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House



Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "**The Western Bee-Keeper.**" and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

☞In responding to this advertisement mention GLEANINGS.

SPECIAL CROPS.

For 75 cts. we will furnish the above paper with either of the following, both for full year: Boston Globe, weekly; Golden Censer, weekly; Family Herald and Weekly Star; or for $1.00, Ballou's Magazine or American Agriculturist; or for 90 cts. any dollar paper in U. S. To secure these rates cut this ad. out and send to **SPECIAL CROPS,**
Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

BARRED
PLYMOUTH ROCKS.

Birds and eggs in their season. Cockerels $3 to $5; choice hens $2 each; eggs $3 per setting; 2 settings, $5.

MRS. F. P. HISH,
TOWER HILL,
SHELBY CO., ILL.

☞In responding to this advertisement mention GLEANINGS.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.
The oldest, largest and cheapest Weekly bee-paper
THOMAS G. NEWMAN & SON,
246 East Madison Street, - CHICAGO, ILL.

COMB FOUNDATION.

I will work Beeswax, when sent to me, into foundation at the lowest price in the world. Send for samples and price to **Jacob Wollersheim,**
2d **Kaukauna, Wis.**

DISCOUNTS FOR EARLY ORDERS.

As is our usual custom, we are allowing a liberal discount on orders sent in now for goods to be used next season. After the vexatious delays last spring, it is needless to explain the many advantages secured by those who order early. Not only do you gain by having your goods to put together and get ready for use during leisure time in the winter months all ready for business in the spring, but you secure a sufficient discount to make the investment a profitable one. You also run the chance of getting better goods, made when we are not so rushed, than some we were obliged to send out last spring, made by unskilled workmen on the night force during the "great rush" for supplies. With the increased capacity that our new two-story brick building, 37 x 100 feet, gives us we hope to be better prepared than ever for such an unusual increase of business as we have had the past season. Still, the experience of the past two years has taught that it is not safe to rest with too much confidence on this reasonably good prospect. It is much safer for you to ORDER EARLY. We have secured from Michigan over 100,000 feet of basswood, out of which we are making the whitest and nicest sections we ever turned out. To verify our word, send 5 cents to pay postage on a sample. With a demand equal to last year, the sections made from this lot will be gone by April 1. We may get more equally good, but the chances are in favor of those who order early. Our new revised catalogue is ready to mail on application.

DISCOUNTS.

The discounts will apply to every thing in our catalogue ordered for next season's use. They can not, of course, apply to large orders for counter goods or honey-packages; but if only a few of them are included with an order for hives, etc., then the discount may be taken from the whole bill.

Up to Dec. 1st, discount will be 5 per cent. After that date, one per cent a month for each month before March; i. e., 4 per cent in December, 3 per cent in January, and 2 per cent in February.

A. I. ROOT, Medina, O.

NEW FACTORY.

On or about Feb. 10, 1891, we will move into our new factory, built exclusively for the manufacture and sale of

APIARIAN SUPPLIES,

located in Ottumwa, Wapello Co., Iowa, where we will manufacture and sell all kinds of Apiarian Supplies at the lowest possible prices, after the above date. Write for illustrated catalogue, to 1tfd

GREGORY BROS. & SON,
Farragut, Fremont Co., Ia.

Wants or Exchange Department.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange a new foot-power saw for honey. Send for a descriptive circular.
W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange my home apiary near Letts, Ia. 180 colonies, everything complete and in readiness for coming season. Location first-class —no apiary nearer than 4 miles—for clear city or country property, merchandise, or offers. Address until Feb. 15, H. L. GRAHAM, San Diego, Cal.

WANTED.—To exchange one Gauge lathe, and 1 lathe for turning handles; want sawmill (portable) or engines. W. S. AMMON, Reading, Pa.
1-2d

WANTED.—Four men that can give good reference to take entire charge of 150 colonies of bees each. Will have to run bachelors' camp, and keep sober. Address WHEELER & HUNT,
1-2d Redlands, Cal.

WANTED.—A man 28 to 30 years old, who is used to working with bees, one who understands running for comb or extracted honey; also understands queen-raising; a man who knows the business. An American and church-member preferred.
C. S. LEWIS, Temecula, San Diego Co., Cal.

WANTED.—To exchange for extracted honey, one World typewriter, 1 Crystal creamer, 4 Cooley milk-cans, 1 No. 8 Buckeye churn.
2d S. H. MUSSELMAN, Blue Ball, Pa.

WANTED.—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free.
2-7db C. W. DAYTON, Clinton, Wis.

WANTED.—A situation by a smart boy nearly sixteen years of age. Address JOHN R. JONES,
2d Duquoin, Perry Co., Ill.

WANTED.—To exchange brown bees in frame hives, for a first-class Safety bicycle, or offers.
2d J. M. OVENSHIRE, D. D. S., Dundee, N. Y.

WANTED.—To exchange 2 trios of fine Wyandotts for 4¼x4¼ sections. Address L. WERNER,
2d Edwardsville, Ill.

WANTED.—To exchange Acme harrow, swell-body cutter, and Planet Jr. horse hoe and cultivator, for Barnes saw, bees, honey, or offers.
2-tfdb MODEL STAMP-WORKS, Shenandoah, Ia.

WANTED.—To exchange Excelsior hand-inking press, 25 fonts type, material, etc., also 5 vols. American Encyclopædia, for honey (crop 1891). A rare chance for smart boy to make money. Write for particulars. S. S. LAWING,
2-3d Henderson, Webster Co., Mo.

WANTED.—An active Christian who understands the management of bees, etc., to take one-third less or more, interest. Location better than—well, I will not say; write any way. P. O. LOCK B. N,
2-tfdb Williamson, N.Y.

WANTED.—To exchange, 1 saw, with counter-shaft and belt. Will exchange for wax.
2-3d L. L. ESENHOWER, Reading, Pa.

WANTED.—At "Chatsworth Apiary," one hundred and fifty pounds of bees, and fifty tested Italian or Albino queens, to be delivered on or before May 20th. 2d HORACE BANKS, 2103 Oak Ave.,
Baltimore, Md.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
12	2	20	⅝	30; 18 in., 50; 72 in., 95, 27.
36	2	20	⅝	144, 66, 60, 54.
48	2	20	⅝	70, 59, 55, 49, 47, 43, 25, 25, 6; 60 in., 47, 42, 32, 24.
36	2	19	¾	43, 38, 22, 19.
42	2	19	¾	50.
60	2	19	¾	48, 44, 42, 38, 32, 28, 11.
72	2	19	¾	134, 130, 120, 108, 103, 103, 100, 94, 88, 81, 73, 72, 68, 67, 60, 50, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	23, 15.
36	2	18	1	144, 122, 50, 43, 35, 17; 30 inches wide, 63, 25.
48	2	18	1	105, 100, 44, 39, 29, 23; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 35, 22, 22; 60 in. wide, 67, 20.
36	2	17	1¼	42, 23, 15; 24 in. wide, 77.
48	2	17	1¼	78, 53, 32; 60 in. wide, 25.
12	2	16	1½	78, 59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1½	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1½	60, 58, 56; 48 in. wide, 70, 48, 46, 40, 26, 19; 60 in., 62.
18	2	15	2	87, 61, 30; 12 in. wide, 100.
24	2	15	2	120, 100, 90, 69, 52, 33, 33, 13, 12.
30	2	15	2	127, 21, 6; 60 in. wide, 21, 20.
36	2	15	2	17, 13, 7, 7, 7, 6, 5.
42	2	15	2	125, 121, 35, 26, 23, 20, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 22, 14.
36	2	14	3	29; 42 in., 71
24	1½	20	1	39; 18 in. wide, 14; 30 in., 14.
42				85, 59.
30	1½	19	1	33, 33, 30; 36 in. wide, 47, 47, 45, 30.
48	1½	19	1	56; 72 in., 64, 63, 10.
18	1½	18	1⅓	40; 30 in., 110.
48	1½	18	1⅓	60 in., 65, 34, 19; 54 in., 12.
30	1½	16	2½	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1⅔	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 82, 50.
32	1	18	2½	85, 32; 9 in., 32; 10 in., 20; 24 in., 23; 30 in., 69, 51.
36	1	18	2½	37; 48 in., 30; 60 in., 59.
9	¾	20	2¾	33, 7; 36 in., 75, 55.
9	¾	19	3	32; 128.
24	3	16	1	46, 19; 36 in., 86; 42 in., 14.
36	3	15	1⅓	63; 48 in., 60.
24	3	14	1⅞	150, 18½; 48 in., 45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23.
22	4	14	4	107, 68, 35, 17, 15, 10.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—We have received up to date 2144 cases of comb and 222 packages of extracted honey. The demand is moderate at present, but we look for a good trade in extracted during February. Prices remain unchanged. White clover, 1-lb. boxes, 16@18; same, 2-lb. boxes, 14@16; buckwheat, 1-lb. boxes, 12@13c; same, 2-lb. boxes, 11@12c. Extracted, light, 9@10; dark, 7@8.

CHAS. MCCULLOCH & CO.,
Jan. 12. 339 Broadway, Albany, N. Y.

CINCINNATI.—*Honey.*—There is a good demand for all kinds of extracted honey, with a full supply on the market of all but Southern, which is scarce. It brings 6@8c a lb. on arrival. Demand is fair for choice comb honey, which we hold at 16@20c in the jobbing way. *Beeswax.*—There is a good demand at 24@26 for good to choice yellow on arrival.

Jan. 8. CHAS. F. MUTH & SON, Cincinnati, O.

KANSAS CITY.—*Honey.*—Comb or extracted not selling as fast as we should like to see it. Market quiet. We quote white 1-lb. comb at 16@18; dark, 12@13; white, 2 lbs., 14@15; dark, 11@12. Extracted, 6@7. *Beeswax*, 25. CLEMONS, MASON & CO.,
Jan. 9. Kansas City, Mo.

ST. LOUIS.—*Honey.*—The situation is unchanged. Extracted and strained honey are in good inquiry at from 5½@6½. Comb, 15@16 for medium light; 17@18 for white. *Beeswax*, prime, 25½c.

Jan. 8. D. G. TUTT GRO. CO.,
St. Louis, Mo.

BOSTON.—*Honey.*—While honey is selling slowly it is well for us that it is so, for we have the smallest stock on hand that we have had for years. Prices are being well maintained, and the supply will be entirely exhausted before the first day of March. Best 1-lb. comb selling at 19@20c; fair to good, 18@19. No 2 lb. in stock. Extracted, 7½@9. No beeswax.

BLAKE & RIPLEY,
Jan. 9. Boston, Mass.

NEW YORK.—*Honey.*—We have nearly sold out all of our comb honey. Market very quiet. We quote extracted basswood at from 8@9c; Fla., at 8@8½c; California, 7@7½c. *Beeswax* scarce; 28@30c, according to quality and color.

F. G. STROHMEYER & CO.,
Jan. 8. New York City, N. Y.

ALBANY.—*Honey.*—The honey market is quiet and steady, with light stocks of any kind or grade. Comb honey is selling at—white, 16@18c; mixed, 14@15c; dark, 12@14c. Extracted honey—white, 9@10c; mixed, 7@8c; dark, 6@7. *Beeswax*, 28@32c. We just sold what extracted honey we had from Iowa at 9½c. This seems to be the most staple honey nowadays.

Jan. 2. H. R. WRIGHT, Albany, N. Y.

CHICAGO.—*Honey.*—Trade is slow at this date, which is usually the case so soon after the holidays. Prices are easier on anything falling short of choice. Comb, 17@18c; off color, 13@15c. Extracted, 7@8c. *Beeswax*, 27c for prime. Receipts are moderate, yet quite up to this time last year. R. A. BURNETT,
Jan. 7. 161 So. Water St., Chicago. Ill.

DETROIT.—*Honey.*—Comb honey is in better supply, and selling at 15@17c; first quality white clover scarce. Extracted, 7@9c. *Beeswax* in good demand at 27@28.

Bell Branch, Mich., Jan. 9. M. H. HUNT.

FOR SALE.—500 lbs. white-clover extracted honey. Price 9 cts. in 1-gallon tin cans. G. L. JONES,
Grand Ridge, La Salle Co., Ill.

WANTED.—One or two thousand pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin Falls, N. H.
17tfdb

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-tfdb. Mt. Vernon, Ia.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb E. J. BAXTER, Nauvoo, Ill.

FOR SALE.—2000 lbs. comb honey in 12 and 24 lb. crates. 2d L. WERNER, Edwardsville, Ill.

CONVENTION NOTICES.

The Vermont Bee-keepers' Association will hold their annual meeting in the parlors of the Addison House, Middlebury, Vt., Jan. 28, 1891. J. H. LARRABEE, Sec'y.
Larrabee's Point, Vt.

The 8th semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at Montrose, Pa., Thursday, May 7, 1891. H. M. SEELEY, Sec'y.
Harford, Pa.

The annual meeting of the Ohio State Bee-keepers' Association will be held in Toledo, Ohio, on Tuesday and Wednesday, Feb. 10 and 11, 1891. Full particulars as to railroad and hotel rates, and place of meeting, will be given later. Let all interested in bee-keeping make an extra effort to be present.

Bedford, O. MISS DEMA BENNETT, Sec'y.

The Eastern Iowa Bee keepers' Association will meet Feb. 11 and 12, 1891, in Maquoketa, Iowa, at the Dobson Town-clock Building, to commence punctually at 10 A.M. There will be a large turn-out of the prominent bee-keepers of the State. There will be a question-box, free to all, in which any question that you wish discussed can be presented and answered. Let all be on hand, and bring in your report for 1890, spring count, or from May 1. The people of Maquoketa kindly furnish us a free hall. FRANK COVERDALE, Sec.

PROGRAM OF THE NEW YORK STATE BEE-KEEPERS' CONVENTION.

First day, January 22, 2 P.M.

Call to order. Reports of secretary, treasurer, and standing committees. Reception of new members, and payment of dues.

"Exhibits of bees and honey at fairs."—Thomas G. Newman, Chicago, Ill.

MISCELLANEOUS.

7 P. M. "Outdoor wintering of bees."—J. E. Crane, Middlebury, Vt.

TOPICS FOR DISCUSSION.

"The proper thickness of comb foundation."

"Is it advisable to use full sheets or starters in brood frames?"

QUESTION-BOX.

Second day, Friday, January 23, 9 A.M.

Appointment of committees.

"Shallow vs. deep brood-chambers; narrow spacing and fixed distances."—N. D. West, Middleburgh, N. Y.

TOPIC FOR DISCUSSION.

"Are we ready to adopt a standard for the American Italian bee? and if so, what are the dsirable characteristics?"

QUESTION-BOX.

1:30 P.M. Receiving new members. Election of officers.

PRESIDENT'S ADDRESS.

"What constitutes a good bee-journal?"—W. F. Clarke, Guelph, Canada.

"Queen-excluders for comb and extracted honey."—J. H. Martin, Hartford, N. Y.

MISCELLANEOUS.

7 P.M. "How has the new tariff affected our branch of agriculture? Free sugar vs. extracted honey for manufacturers."—F. B. Thurber, New York.

"What our market demands."—Henry Segelken, New York.

QUESTION-BOX.

Saturday, January 24, 9 A.M.

MISCELLANEOUS.

"Artificial heat to prevent brood-rearing."—Samuel Cushman, Pawtucket, R. I.

"New uses of queen-excluding zinc boards."—F. H. Cyrenius, Oswego, N. Y.

QUESTION-BOX.

1:30 P.M. "Bee-escapes: their uses and advantages."—C. H. Dibbern, Milan, Ill.

Reports of committees. Miscellaneous business.

P. H. ELWOOD, Pres. G. H. KNICKERBOCKER, Sec.

☞The Eastern New York Bee-keepers' Association will meet conjointly with the above—same time and place.

THOS. PIERCE, Pres. W. S. WARD, Sec.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of bees, hives, and apiarian supplies in general, from the following parties:

Geo. E. Hilton, Newago, Mich.
M. H. Hunt, Bell Branch, Mich.
M. S. Roop, Council Bluffs, Iowa.
The G. B. Lewis Co., Watertown, Wis.

The following are from our press:

F. W. Lamm, Somerville, O.
Miller Bros., Bluffton, Mo.
G. W. Cook, Spring Hill, Kansas.

ALL YOU

who are in want of Sections, Bee-hives, etc., berry-baskets, or crates, set up or in the flat, please give us a trial order. 2d **J. B. MURREY, Ada, O.**

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XIX. **JAN. 15, 1891.** **No. 2.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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STRAY STRAWS

FROM DR. C. C. MILLER.

How are your bees wintering?

NEW-YEAR'S DAY—rain; very unusual.

THE AMERICAN BEE JOURNAL, in its new form, is very neat.

NEWMAN is calling the roll of the dead or missing bee-journals.

HONEY has 12 to 23 per cent—normally 18 to 21 per cent—of water; the rest is sugar.

MY INTRODUCING-CAGE beats McIntyre's when you get a queen from abroad, or take a queen to an out-apiary.

THE *British Bee Journal* is a rather loose affair. It is never stitched together. It's not loose in its views, though.

McINTYRE'S INTRODUCING-CAGE is ahead of mine for changing a queen from one hive to another in the same apiary.

CYPRIANS AND HOLY-LANDS are not much talked about nowadays. Does any large honey-producer use them exclusively?

TEA-LEAVES kept in pans of water are recommended for drinking-places for bees, by W. Woodley, in *British Bee Journal.*

THE INDEX of the *American Bee Journal* deserves commendation for giving with each subject the name of the author.

DOOLITTLE says, "If you wish a large yield of section honey, keep prolific queens, and let the brood-combs alone, after they are once filled with brood in the spring."

QUEENLESSNESS, according to Doolittle, in the *American Bee Journal*, can never be detected from the outside, if the bees have the means of raising a queen. Thus the few things I thought I knew about bees are diminishing in number.

BEES IN CELLARS are always quieter—at least mine are—just after a windy time, whether cold or warm. A still, muggy time is worst. Don't tell me cellars need no ventilation.

OUTSIDE CASES for wintering are among the things that I meant to have tried this winter. I'm "dreffut" anxious to know how those 28 at Medina pull through the winter, if we have any winter.

"STRAY SWARMS" is what "Observer," in *Canadian Bee Journal*, calls this page. He says, "I venture the opinion that it will be an interesting page." I always did think "Observer" was venturesome, and lacking in judgment.

BEES HANGING OUT can be made to "go in and attend to business, simply by the use of a smoker," according to the A B C. I don't believe a word of it. I tried it lots of times. They'll go in, of course; but does it make any difference in their work?

ADULTERATION IN AUSTRALIA was deprecated at a meeting of bee-keepers there, where it was declared, "Large quantities of an article labeled 'honey' are manufactured here, in which there is not a fractional part of real honey—in some cases none at all."

BRITISH WEATHER has been unusually severe. In England, Nov. 28, the thermometer marked 5 above zero—"twenty-seven degrees of frost," as they call it—a very rare thing, and snow covered the ground from two inches to two feet. The *British Bee Journal* says, "Indications everywhere point to the probabilities of an exceptionally severe winter."

BINDERS for GLEANINGS and other papers I've thrown aside. When the year is up, I put the numbers straight together and get some one to hold them so, while I drive in, and entirely through, three two-inch wire nails, at the right place to stitch them together. Each nail is drawn out just as I want to sew the cord through the hole m ade by the nail.

A RECORD-BOOK is a thing I shouldn't like to be without. I've started mine for 1891 already. I keep in it all sorts of memoranda of interest. Mine's about 13 by 6, costs 25 cents, and lasts a year for 300 or 400 colonies. Each colony has its place in numerical order, three colonies on a page.

"OBSERVER," in *Canadian Bee Journal*, thinks too much time was taken up at Keokuk with "flowery nothings." I always did think "Observer" was a person of good judgment. But, "Observer," it isn't pretty to say, "Americans pay but little heed to any thing Canadians want." What do you want?

INCORPORATION OF THE NORTH AMERICAN under State laws, troubles the *Canadian Bee Journal*. It thinks incorporation by Congress would make it more what its name signifies. Why, bless you, Mac, the point of incorporation doesn't limit its field of occupation. Washington isn't as near Canada as Springfield.

A GOOD ONE on A. I. Root! Cheshire says, "My own bee-house long since came under the chopper; but Mr. Root thinks well of the house-apiary," and then quotes about a page in its favor from the A B C. Friend Root, I don't pity you one bit. You've no business to let such misleading things stand in a standard work.

BEE-JOURNALS AT COST is what the *Review* hints every bee-paper but the *Review* is. Some have undoubtedly been issued at less than cost, but the standard journals, at least part of them, either lie egregiously or they make a good thing of it, independently of the supply-trade. I'm sure they give us both sides of every question too. Look here, W. Z., you keep on making a good paper, and let the others alone. If you don't, I'll tell on you about advertising "cream" for sale, and then not even furnishing skim-milk. The others furnish the supplies they advertise.

MOUNTAIN LAUREL, *Kalmia latifolia*, is the plant that yields poisonous honey. Cheshire says it grows in "damp places," and adds, "Happily, our American cousins are now never likely thus to suffer, thanks to drainage, the plow, and the bee-farm." For a man who is so exacting as to other authors, isn't that a bit reckless? If he were to see it growing among the rocks of my native hills in Western Pennsylvania, he'd change his views. "Damp places," where the ground runs nearly straight up! Some of those pebbles 6 feet through would hinder a plow.

TEMPERATURE IN CELLARS is higher at top than at bottom. Macpherson, of *Canadian Bee Journal*, reports a visit to Allen Pringle's cellar, where two thermometers are kept, one at top, the other at bottom. At top it was 48°; at bottom, 42°; a difference of 6°. I never found so much difference as this and other reports make. I have just been trying my cellar. I put in two thermometers. Each showed 46°. Then the thermometers changed places. Top, 48°; bottom, 44°—a difference, you see, of 2° between the top and bottom of cellar, and a difference of 2° in the thermometers.

[Now, look here, doctor. You have been thus far very quiet and peaceable, and, as a rule, respectful, bundling around among your "straws;" but when you say that you do not believe a word of something I tell you, and which has been told for years in the A B C book, I think it time to stir a little myself. A good many times a new swarm will hang on the outside of the hive, and not go to work. In such a case I would put a comb with a little unsealed brood inside, then with a smoker make them crawl in; and when they find the brood, and find what a nice place they have, they usually pitch in and behave as the orthodox have always done with the "shining" hour. Another thing, our good friend Cheshire made a mistake and you turned right in with him. If both of you will read the opening remarks in regard to the house-apiary, you will find a string of objections, and something like the following: "Most apiarists prefer to work in the open air, to being cramped up in a building." Again, "In a building we are obliged to get the bees out of the room every time we open a hive, and bees are very untidy when crushed by careless footsteps," etc. What rickety thermometers you must keep in your cellar! I hope you did not buy them of any respectable supply-dealer.]

GENERAL CORRESPONDENCE.

SEVERAL QUESTIONS IN QUEEN-REARING ANSWERED.

DOOLITTLE REVIEWS THE MATTER.

The following questions have been sent in for answers; and to simplify matters I will number the questions and answers.

1. Why does not all the progeny of a black queen, mated with an Italian drone, or an Italian queen mated with a black drone, show the same markings?

2. Will the eggs and larvæ of a queen two months old produce as good queens as if she were one or two years old? If not, why not?

3. If we make a colony queenless, removing all the eggs and brood, and give this queenless colony a comb containing 1000 eggs, not nearly as many queen-cells and cells of capped brood will be found on the tenth day as we gave eggs. What becomes of the eggs? If destroyed, why? If used in the jelly given the queen larva, would the eggs of a black queen affect the coloring of the young queen reared from Italian larva?

4. What is the least number of days after hatching, the weather being favorable, required before a young queen will leave the hive for fertilization?

5. Will there be any difference in the time of leaving the hive for fertilization, between a queen hatched in 10 and one hatched in 16 days?

6. How many days after hatching, before the worker-bee leaves for labor?

7. In what does their first outdoor labor consist—gathering honey, pollen, water, or propolis?

8. Will a queen reared from an old queen about to be superseded be as good as when reared from the same queen in her prime?

1. For the same reason that *no* "blood" of two different colorings can be mixed and have the progeny of the mixture show a uniform coloring. Take any of our animals, the sheep, the hog, the cattle, horse, dog, cat, etc.; birds of all colors as to feathering; or the vegetable kingdom, and we find the same laws governing them in this matter of coloring, just the same as we find regarding the bees. Plant Marblehead and Hubbard squashes side by side, so that the bees can mix the pollen in the blossoms of each, and see what a mixture of color you will get as a result. If the progeny of a mismated queen should show a uniformity of coloring, bees would be an exception to the laws governing the most of animated creation.

2. According to the prevailing opinions of others, no; but according to the most careful observation on my part, yes. After years of careful watching along this line, I fail to see any difference between a queen raised from the very first eggs laid by any queen, and those laid by the same queen two years later; and I do not believe there is any difference. Will those who doubt this fact tell us wherein the

difference lies, giving facts to support their ideas? Has any one noticed that the first workers hatched from any queen were in the least inferior to those produced by the same queen later on in life, every thing otherwise being in a normal condition? The size of the cradle and the amount of food given govern this matter. it seems to me, rather than the age of the queen.

3. Some of the eggs are removed to give place to the larger and more commodious queen-cells. Why more than these are removed I do not know, unless it is because the colony is thrown into an abnormal condition. As to what becomes of the eggs, I have no hesitation in saying that the bees eat them; for I have repeatedly seen bees eating eggs as they came from the queen. Because the bees eat eggs, it does not necessarily follow that they in any way enter into the food given to the young queen larva, for, according to my observations, thousands of eggs are eaten by the bees when they have no idea of rearing queens. And if they did enter into the royal jelly they could only form so small a part of the whole that little or no chance as to coloring could be given. But if, as nearly all claim, this royal jelly is an animal secretion, how could it possibly affect the color of the young queens, even if the royal jelly was formed wholly from a diet of eggs from black queens? I had supposed the old Kirby theory was exploded long ago. From many years of experience, I have failed to find that black nurses, or eggs or larvæ from a black queen, in a hive from which Italian queens were being reared, had any thing to do with the coloring of such queens.

4. Five days after maturity is the least number that I ever knew to elapse before the queen went out to meet the drones. But a queen does not always hatch on her maturity, for very many are held in their cells from one to five days by the worker bees, after they would have gnawed off the capping to their cell and come out, could they have had their own way. Queens are more often held in their cells in this way than is generally supposed. In one instance I opened a hive and found a young queen piping away with a vehemence I had never known before. After looking the hive over I found a queen-cell with a queen in it which I had overlooked when cutting out cells from this hive some time before. As there was plenty of bees in this hive I took the frame having this cell upon it, bees and all, and set it in an empty hive, together with a frame of honey, thus forming a nucleus. The queen from this cell took her wedding-flight successfully the next day; and in two days more, or three days in all from the time I set the sealed cell in the hive, she was laying worker eggs regularly in the comb which her cradle was on. This is a fact, and is as I have it down in one of my diaries. I told it at a bee-convention once, not explaining the aforesaid maturity part, and no one would believe it. Thus it will be seen that the days from *hatching* are not a safe guide to go by.

5. Yes; the queen hatched in 10 days will, as a rule, be slower in going out. In round numbers, 3 days in the egg form, 6 days in the larva form, and 7 days in the sealed state, is the rule for all queens from a colony in a normal condition. Thus it will be seen that the queen which hatches in 10 days must have been from a larva at least 3 days old, when the bees commenced to change it from a worker to a queen. Nine-day queens are very slow in being fertilized, while, out of a batch of queens which once hatched in 8½ days, only two became fertile at all; one being fertilized after she was 20 days old. These queens could scarcely be told from a worker, and neither lived to be over three months old.

6. They can be forced out at three to four days old; but when the colony is in a normal condition, 16 days is the rule. For observations along this line, proving the same to be facts, see back volumes of the different bee-papers.

7. Either or all, just according to the wants of the colony, and according to the supply to be had from the fields.

8. Yes; and I would add, that some of the best queens I ever had in my apiary were reared by this superseding process, the old queen living from one day to one year after the young queen, or the queen-cell for her, was started. The answer to question 2 will hold good here. I have never seen any difference in queens or workers reared from queens about to cease life, as compared with the same from the same queen when in her prime. Has any one else? If so, will he please tell us about it?

Borodino, N. Y., Jan. 1. G. M. DOOLITTLE.

[In regard to Qu. 3, where queenless colonies are given a comb full of eggs, the latter are surely not *always* destroyed; for at one time we practiced this plan for getting cells, nearly a whole season; and I did not particularly notice the disappearance at the time, although I have noticed something of the kind since. Will others who have experimented particularly in this line let us know about it?]

THE HOFFMAN FRAME.

THE NEW HEDDON HIVE.

Friend Root:—According to my promise to you at the Keokuk convention, I will give you my experience for the last 8 years with the "Hoffman frame." My first bees were hived on Root's metal-cornered frames, in Simplicity hives. I soon found, however, that they were too light and frail. They would sag down when well filled with brood or honey, and I soon replaced them with the Hoffman frame, of which I procured a sample to work by, from friend Hoffman himself, or friend Nellis, I have forgotten which. I found them far superior to the metal-cornered frame—no sagging, and, what was of decided advantage to me then, as I was engaged in migratory bee-keeping, was the ease and dispatch with which I could prepare full colonies for transportation; and, later on, when engaged largely in raising and shipping queens and nuclei, I found nothing to equal them for safety and convenience in shipping; and at the present, while I am engaged in raising comb and extracted honey in out-apiaries, they fill the bill to my satisfaction, though they are not quite so convenient as the closed-end frames in the horizontally divisible brood-chamber, as used by friend Heddon in his new hive, of which I have 50 or more in use at present.

While using the Hoffman frame for the past eight years, as stated above, I have used all-wood dovetailed frames of different thickness and width, some sawed for wiring, some pierced for wiring, and some without wire, and none have given the satisfaction the Hoffman frame has. Why, then, not adopt it exclusively? For this reason: Their cost. My principal business for the last six years has been that of raising and selling queens, three-frame nuclei, and full colonies of bees; and the prices I have been compelled to sell at have prohibited the use of so costly a frame as the Hoffman.

Now, however, as I am raising honey on the out-apiary plan, I shall use the Hoffman frame and Dovetailed hive, in connection with the new style of Heddon hive, with its fixed frames;

and I may say here, that, with specialists who make handling bees their sole vocation, the new Heddon hive is one of the best, if not *the* best, ever devised, so far as my limited experience goes. Why not adopt and use it exclusively, then, instead of the Hoffman frame and 8-frame Dovetailed hive? Same reason—cost. Another is, the new Heddon hive and frame are not standard, and the Hoffman frame and Dovetailed hive are, and you can not fill orders for nuclei or full colonies as readily as you can with the Hoffman frame. This may look like advertising the divisible-brood-chamber hive; but I do not mean it so; but friend Root can strike it out, if he thinks best, though, as friend B. Taylor, of Forestville, Minn., has used for 20 years such a hive, and demonstrated by great crops of honey its advantages, its merits should be more generally known.

Another and great advantage of the Hoffman frame is the ease and certainty of correct spacing; and this, to one who handles many frames (and especially at out-apiaries, where the time to work with the bees is limited, if you return home the same day, and the distance is great), is of great advantage, as I have proven to my complete satisfaction, as one can do more than double the work in a given time, and do it far more correctly.

I think I have said enough on this subject to convince any one of the advantages of a fixed frame that is a standard L. frame also, and I am sure none who gives it a fair trial will reject it. The only objection is their first cost; but they are well worth all they cost, to one who expects to make a living by raising honey, and especially those situated as I am, who, in order to get a fair crop of honey, *have* to run out-apiaries. E. T. Flanagan.

Belleville, Ill., Dec. 26.

[The Hoffman frame used to cost anywhere from $3.00 to $3.50 per 100; but now they can be obtained for $2.00 per 100 almost anywhere, or, in quantity, for less money yet. The matter of *cost*, then, does not figure as largely as it did. I would rather use a *good* frame at double the cost than a poor frame that costs half the money.

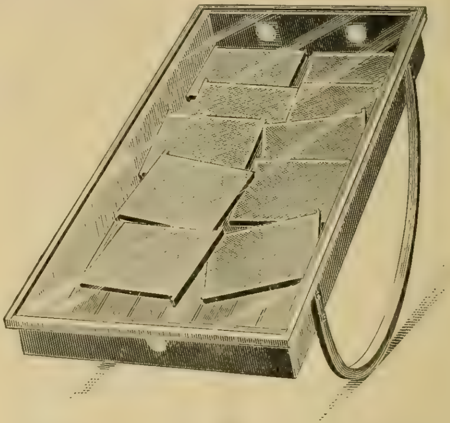
That's all right about the new Heddon hive. We want the truth. If it has merit, let it be sung.]

THE SOLAR WAX-EXTRACTOR AND HONEY-EVAPORATOR.

H. R. BOARDMAN'S DEVICE.

In Gleanings of Oct. 1, Mr. S. F. Newman notices, in a very complimentary way, my "improved solar wax-extractor." I almost think I ought to apologize for not responding sooner to your request to tell all about it in Gleanings; but I have been delaying in hopes of being able to send a picture of it or a model. I made a mammoth solar extractor about two years ago, that was illustrated and described in Gleanings. This did the work well, but had no very easy means of adjustment. It was imperfect, heavy, and clumsy to handle. I was satisfied with the principle, but not with the manner of its construction. After spending considerable time in dreaming and experimenting I wrought out the "invention" to which Mr. Newman calls your attention.

The improvement consists in mounting upon rockers instead of wheels, by which means it can be adjusted, or turned, with perfect ease. It also dispenses with the chamber at the lower end, for holding the wax-pan. In fact, it is little more than a plain shallow box with a few modifications, covered with glass, and adjusted at an inclination to the sun, for its heat. The combs are thrown into this box, when the wax is melted and runs down the inclined bottom, leaving the residue. The wax can be drawn off or allowed to cool, when it can be removed. The lower end of the extractor is covered, so that it leaves it in the shape of A. I. Root's bread-pan feeders with sloping sides, so that it really combines the wax-pan with the extractor.



BOARDMAN'S SOLAR WAX-EXTRACTOR, IMPROVED.

There are ventilators in each end covered with wire cloth, that can be opened or closed at pleasure, when used as an evaporator.

I am sure that Mr. Newman does not overrate its merits. It has been a success with me, not only as a wax-extractor, but for evaporating and melting honey.

It is an old chestnut, that granulating is the test of purity in honey. I am using honey on my table now that is clear and limpid, that has been treated only by being placed in this evaporator for a while at the close of the honey season. This is the only extracted honey I have ever been willing to say I thought equal to comb honey. Isn't this the secret of some of the California honey not candying? I suspect it is.

No, I have not got them to sell, but I could make them on short notice, if wanted. I can not say definitely what they would cost, but they would not be expensive. I think they would cost some less in proportion to their size than the small ones now in use. Of course, it is not patented.

I have had some difficulty in finding just the right material for the inside, or lining. Wood seems to do as well as any thing I have tried. It must be of narrow stuff, matched, and well painted a drab color. The only objection I have found to wood is, it shrinks, from the constant heat it is subject to. Tin does nicely, but does not absorb heat as does something of dark color. I have tried paint on tin and iron linings, but they do not hold paint as well as wood. The hot wax dissolves or softens the paint, and it scrapes loose in cleaning out the residue, or "slum gum," as our California friends say. Mr. Doolittle advises the use of Russia iron; but iron will not do. I have rejected a lining of Russia iron, after giving it a thorough trial, on account of its discoloring the wax. It won't do to use iron when it comes in contact with melted wax. H. R. Boardman.

East Townsend, Ohio, Dec. 5.

[You have no doubt presented the bee-keeping fraternity with a valuable implement; and although the idea is not new, you have simplified its manner of construction. As a solar wax-extractor and honey-evaporator, it is probably ahead of any thing else before the public, in the way of cheapness, utility, and convenience. For a small solar wax-extractor alone, we like the Doolittle style the best; but for wholesale melting, yours is perhaps the better. We shall probably get orders for them; but if friend Boardman has any idea of making them, and will make them and offer them for sale, we shall be glad to leave the field entirely open to him, so far as we are concerned.]

PAINTED VS. UNPAINTED HIVES.

WHITEWASH AS A SUBSTITUTE; WHY THE DOVETAILED JOINT IS SUPERIOR TO EVERY THING ELSE IN CALIFORNIA.

In March 15th GLEANINGS, 1889, Mr. Doolittle has an article advocating unpainted hives, saying that, as the paint prevents evaporation of moisture, painted hives are much more damp and cold, and that bees in the unpainted ones will swarm from one to two weeks earlier in the spring. A. I. Root, in his footnotes, recalls the fact that he had often seen water running out of painted hives, and says he is pretty sure there would have been no such ice and condensation had the hive been unpainted. Thinking over the matter I remembered that, in my painted hives, I had had many combs rotted by mildew. I was increasing my apiary rapidly at that time, and had many hives to build. I decided not to paint them. The interior valleys of California are hot. Where my apiary is, the mercury often registers in the shade 110° Fahrenheit for eight hours a day and eight days at a time. Well, this heat on my black unpainted hives causes the combs to melt down *en masse* unless the hive is shaded or very much ventilated. One day in July, one of these hot days came. I had wilted in the morning as soon as the sun hit me; and, though knowing that my bees needed extra ventilation, I lay under the dense shade of an oak and read "King Solomon's Mines." In the evening I crawled off to look at the bees, and it seemed to me there was a creek of honey running out of the entrance of all the unpainted hives in my apiary. I lost some forty colonies outright, and there were many others badly damaged. The white painted hives stood the ordeal vastly better, though even in them, when the entrance was not full width of hive (like your Dovetailed hive), there were some combs melted down. My combs were mostly new ones, and very full of honey. After that disastrous experience I whitewashed my hives, and I now believe that that is the proper treatment for them, as it combines both the advantages of the painted and the unpainted hives. The whitewash does not prevent evaporation of moisture; and by giving a fresh coat each spring the hives much surpass in whiteness, and therefore in coolness, a painted hive, especially if it has not been painted for two or three years. Mr. Doolittle, too, seems to have had some unfavorable experience with unpainted hives since writing his article of March 15, 1889; for, May 15, 1890, one year and two months after, he closes a letter by saying he now "prefers to paint his hives and let them stand in the sun."

Your Dovetailed hives, both in body and style of cover, are well suited for this climate, as nails alone will not prevent boards from warping here.

This has been an unfortunate year for me in several respects, commencing with the going to pieces of my fine apiary from excessive swarming, so that I got less than half as much honey as I should have done. Next a Dago sets out a brush fire one hot August day, and in the conflagration which ensued, 21 of my hives of bees were burned, and many more melted down. I saw the fellow set out the fire; and as he refused to pay damages, which he was well able to do, I prosecuted him; but he came to court with some of his countrymen, and, by perjury, convinced the jury that he was asleep under a tree at the time the fire started. He has recently served a notice on me, telling me to keep my bees from coming on his land, claiming that they destroy the *grass*. WM. G. HEWES.

Newhall, Cal., Dec. 20.

[You have given us a valuable article. The evidence that you present for hives painted white or whitewashed, as against hives unpainted, is convincing; for certainly no one could have had a better opportunity to observe the comparative differences. Dr. C. C. Miller does not paint his hives. He argues, if they will last him fifteen years, he can afford to throw away his old hives that have never been painted, and buy another set, because the money saved in paint and time will buy the new hives. Besides that, he would have all the advantages of modern improvements in the new hives. The testimony of bee-keepers generally is against having hives unpainted. It is generally supposed that whitewash will not preserve wood. If prepared right and put on right, I think it will. At this point I stopped and talked with an experienced mason—one who served an apprenticeship of seven years in England. He says that whitewash will preserve wood. Its mode of preparation for outdoor work is as follows: To three pounds of lime add one pound of cheap grease, and then add hot water until it is of the right consistency. It should be put on the wood while it is hot. If put on when it is cold it is liable to rub off and soil clothing. Many years ago we used a whitewash made of water lime and skim-milk, to cover our old American hives. This seemed to hang to rough unplaned wood very well, but we discarded it because it did not look as neat and tidy as hives that were planed and painted. Whitewash will perhaps prevent melting down of combs as effectually as white paint. It is not only very cheap, but it can be applied with a whitewash-brush.

If any hive will stand it without painting, it is the Dovetailed; and I have no doubt that the lock corner, as some prefer to call it, will stand a great deal more than any other in a climate like that of California. Some of the bee-papers argued that there was no need of a stronger corner. Our own apiary, and my observation of other apiaries, show that there is such a need; and in California it is a necessity. It is too bad that you could not get hold of that Dago. They are rather "tough" citizens, and it is often better to get along with them with as little trouble as possible.] E. R.

THE BEET-SUGAR INDUSTRY OF THE UNITED STATES.

ONE OF OUR CORRESPONDENTS GIVES US A GLIMPSE OF WHAT IS GOING ON.

Friend Root:—In a recent issue of GLEANINGS, some one intimated that beet sugar is not as pure as that manufactured from cane. We have been using beet sugar made at Grand Island, this State, and it is good enough for us—in fact, we think it is much whiter and sweeter than granulated sugar obtained elsewhere. I have taken pains to get a sample of beet sugar manufactured at the factory at Grand Island, and send the same to you to-day by this mail. If you do not pronounce it equal to or at least as pure as any in your market, I am mistaken in your good judgment. I know by actual experiment that it will do for feeding bees; it is fully as good as cane sugar.

At Norfolk, in this county, a beet-sugar factory has been erected, which, when completed, will be the largest in the world, and perhaps the day is not far distant when you and your readers will *call* for Nebraska sugar-beet sugar.

Nature has not been very lavish with her gifts, but she has given us soil in which are grown the finest beets in the world; and according to government analysis they contain the greatest amount of saccharine matter.

I send you a paper containing an account of the great enterprise at Norfolk. A. C. TYRREL.

Madison, Neb., Dec. 20.

[The sample of sugar received is certainly equal to any thing I have ever seen or tasted. The granules are perhaps a little larger than ordinary, but they are as clear and white as pieces of the clearest ice, and remarkably pure to the taste, and free from any thing suggesting the brown or cheap sugar. As so much interest has been expressed in this matter, we have thought best to make an extract as follows, from the paper which friend T. was so kind as to send us—*The Norfolk News:*]

HOW BEET SUGAR IS MADE BY THE DIFFUSION PROCESS.

The *News* can perhaps give a better idea of the "diffusion" process of sugar-making employed by the Oxnards, and of what the new factory at Norfolk will do, by inviting its readers to follow the beets from the farmers' wagons and cars, through the various processes, until the beautiful granulated sugar drops in three grades of fineness into bags or barrels ready for the table or otherwise.

The beets are stored in huge bins, with a V-shaped bottom terminating abruptly over a canal that runs along its entire length, the bottom being composed of short planks which can be removed when it is desired to let the beets drop down into the canal. As wanted, the short planks are lifted up, and the beets drop down into the canal. A rapid stream of water floats them along, soaking and washing them as they go, until they reach the building. Here they are dipped out by a great bucket-wheel which spills the water back into the canal, and carries the beets up and drops them upon a chute, which takes them through the wall of the main building and into one end of a long cistern, say three feet deep and wide. In this a shaft with wooden arms, set in a spiral, stirs the beets in the water and keeps moving them toward the other end. Here a broad-bladed screw, set slanting, lifts the beets out of the water; carries them up and drops them inside an immense cylinder, which gives them many whirls in water and drops them out at its elevated end. Next they pass over a long platform made up of cylinders covered with stiff bristles revolving in opposite directions. These brush out the last vestige of soil in the depressions of the beets as the beets glide over them, and they drop off clean into a chute which carries them through a wall and lands them in a perpendicular elevator with buckets which carry the beets to the top of the main room, where a chute conducts them into a receptacle, standing on scales, which tips them out as often as 2200 pounds drop in. Thence they slide into the mill, which cuts them, a ton in three minutes, into little corrugated strips as large as a hen's quill, and two to four inches long. These strips are called "cossetts," a technical French name which answers as well as any. If ground fine or into thin shavings they would pack in the diffusion cells and not let the water run through freely. Next they slide into the diffusion cells, which may be three or four feet in diameter, and eight or ten feet high, and hold one to one and a half tons of pulped beets. A number of these cells arranged and connected with each other is called a diffusion battery, just as several cups used in galvanic electricity are called a battery. The successive cells are usually numbered 1, 2, 3, 4, etc. Each cell has a cap, or cover, which can be turned to one side, or be closed air-tight when put in place, with rubber under the outer rim, and brought down with a powerful lever screw. The flat bottom is similarly closed, but has a false bottom a little above it—a strong copper plate full of fine holes. A metal hot-water pipe enters the top just below the cover. Another similar pipe below runs out from the open space between the bottom and the perforated false bottom. This ascends and enters the top of cell No. 2, and in doing so passes through a steam pipe or chest. From No. 2 a similar pipe runs to No. 3, and so on through any number of cells in the battery. The tops of the cells being opened, they are filled with the cossetts, or strips of beets, and the covers are fastened down. Hot water is then let in through the pipe, the required pressure being obtained by placing the hot-water tank at any desired height. As will be seen, the hot water passes down through the contents of cell 1; then out at the bottom and up over into the top of cell No. 2, and down through its contents, and so on through the other cells. The water, being cooled in passing through the material, is heated in the steam-chests. In practice, thermometers on these indicate by a dial on the outside when the liquid is of the desired temperature, and the attendant turns the steam on or off from any steam-chest as needed. The same water passes through all the cells, often obtaining all the sugar it can dissolve before reaching the last one. By the time ten or twelve successive waters have passed through cell No. 1, all the sugar is extracted, its bottom is opened, the exhausted cossetts are dropped into a large receptacle below, and new material is put in. The fresh-water inlet pipe is changed to No. 2, and No. 1 becomes No. 12, or the last of the series, the saturated juice leaving this. Cell No. 2 having already had 11 doses of water passed through it, the first supply of fresh water passing through it removes its last vestige of sugar. It is then refilled with fresh pulp, and becomes No. 12 of the series, No. 1 becoming No. 11. So the process goes on round and round. The sugar-saturated liquid from the diffusion battery and its receiving-tank is carried into great tall tanks, in which the sweet liquid is mixed with milk of lime, which unites with and destroys native acids in the beets, and other impurities. After a while the carbonic-acid gas which was caught from the kilns which burn the lime on the spot (outside), to make the milk of lime with, is let in through the liquid, and unites with and solidifies any excess of lime not already solidified. This liquid is then carried off into the filter room, where it passes through a remarkable series of filters, which remove the lime and other impurities. The clear liquid-looking-like thin molasses then flows down into shorter tanks, where a little more lime is added to remove any acids escaping the first liming. It is then again pumped to a set of clean filters in the filtering-room, and comes back into the main room to be pumped as required into the great condensing boilers, four in number. The great air-pump removes the air and steam produced inside the first boiler, so that the liquid boils down very rapidly at a low temperature, 135° to 140° Fah. After partial condensation the liquid passes to the second for further concentration; then into the third and finally into the fourth. The heat and pressure of each succeeding boiler are regulated to the increasing density of the syrup. From the last condenser, the concentrated syrup passes into large reservoir tanks, and is next pumped into the "vacuum pans," which are really great air-tight, upright cylinders, from which air-pumps exhaust the rising steam. In these vacuum pans the syrup becomes a thick mass of sugar crystals and molasses. From these, buckets carry the mass and drop it into the "centrifugals." These are iron cylinders, say 3 feet high and 4 feet in diameter, the outer rim covered with fine brass wire cloth. Part are working while the others are being emptied and re-supplied. They revolve about 1000 times a minute, the outer rim traveling 10,000 to 12,000 feet, or over 2 miles a minute! The sugar flies against the outside, and in two or three minutes all the molasses is thrown through the wire gauze, and drops into a receptacle below, to be further treated and concentrated, and to produce another lot of crystallized sugar. The sugar, now white, is sprayed with a forcible jet of mixed air and cold water, all of which flies through the gauze, leaving the sugar a mass of clean white grains, a trifle damp. The bottom is opened, the sugar drops into a receptacle below, whence it is taken by a screw elevator into the drying-room.

Here is a 30-feet-long revolving cylinder, 5 or 6 feet in diameter, sloping downward. Its inner surface is full of little shelves, while in the center is a small cylinder kept warm with steam inside of it. As the sugar is brought up from the centrifugals, it drops into the elevated end of the great cylinder. It is picked up by the little shelves, and when they come around to the top (as the cylinder slowly revolves) they drop the sugar off upon the inner warm cylinder, which dries it, and it falls off to be picked up by other shelves and carried up again. As this cylinder stands sloping, the dry sugar works down toward the far open end. This end terminates in a rim of fine brass wire, next to which is one of a coarser mesh. All the fine-grain sugar, composing a great deal of it, now entirely dry, falls through the fine wire and goes down a chute into barrels or bags in the shipping-room below. The next grade in fineness passes through the next screen, and falls down another chute. The coarsest grains fall out of the end into a third chute.

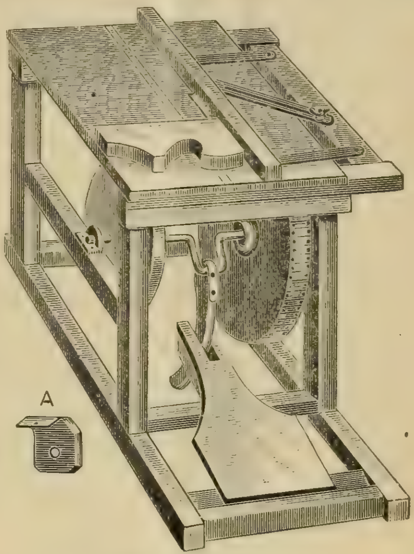
An interesting arrangement is the current of air sucked through the long cylinder from the far end, which takes up moist vapor from the drying sugar and some fine sugar dust. This air is driven through a long room with partitions nearly across, first from one side and then from the other, twenty or thirty of them. These check and cool the current of air, and all the fine sugar dust drops on the floor as pure sugar flour. It is usually re-dissolved and concentrated, and crystallized into coarser grains through the centrifugals, so nothing is lost. Even the molasses is mainly worked into sugar unless it shall be worth more in the syrup form.

[To indicate something in regard to the present demand for the seed of sugar beets, I will mention that, while visiting Ferry's immense seedhouse in Detroit, I saw stacked up in one of their great rooms such a vast quantity of seeds in bags that I asked the guide in astonishment what it was for which there could be such a demand. He told me that it was sugar-beet seed from France, and that they had just put in two shiploads. We have for several years past raised the beets on our own grounds, just for the fun of it. As visitors go through our fields I frequently cut off a piece of beet, and cut it into little strips, and pass it around. The visitors always make exclamations of surprise. The real sugar beet, in the right kind of soil, is almost as sweet as the licorice-root which children get at the stores. No wonder they get sugar from it in immense quantities by simply washing it out from the beets with pure water, by the diffusion process, so plainly described above.]

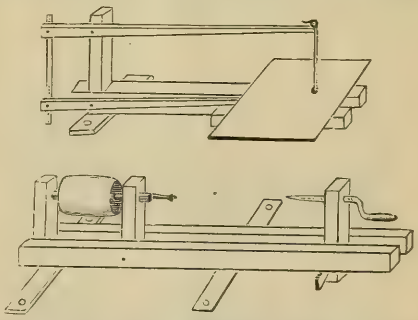
THE STEWART HOME-MADE SAW-TABLE.

PLAIN INSTRUCTIONS HOW TO MAKE ONE WITH A TURNING-LATHE AND SAW ATTACHMENT.

Mr. Root:—As per your request I send herewith a sketch of my home-made saw-table, with lathe and scroll-saw attachments. The framework of my saw-table is made of 2x2½-inch scantling, and is 28 in. square. The sills are 18 in. longer in front, for hinging the treadle. The frame is mortised together, and pinned. The tread-hinge consists of a piece of scantling with a hole in each end, and is just long enough to go between the sills. A hole is bored in each sill, and a hickory pin driven through the sill and into the end of the tread-hinge. The treadle is made of a ¾-in. board, 8 in. wide, securely nailed to the hinge, and is tapered to 3 in. wide at the end where the pitman is attached. A block in the shape of a wedge is securely nailed on the under side of the narrow end of the treadle, with a mortise for the pitman. The pitman is hard wood, with an iron cuff. The crank-shaft is a ¾-inch iron rod. The crank has a six-inch sweep. The drum that runs the mandrel is 22 in. in diameter, with a three-inch face. The wheel at the left is 15 in., and runs the lathe and scroll-saw. They are fastened on with taps and washers. The table is made of inch boards nailed to two pieces of scantling, 4 in. longer than the frame. The parallel bar is so hinged that it can be raised and turned over, and will hang down on the right side of the table when not in use. A space 1½ in. wide is left in the table for the cut-off gauge, which is made of two pieces, one the length of the table, 1x1½ in., the other 1x6 in., tapered to 3 in. at the end to the left, and nailed securely together at right angles. The table is held in place by a pin in each corner, and can be lifted off or on in an instant. The mandrel is the one you sell for $3.50, and is fastened on to two pieces let in at each end in the top pieces of the frame. The saws are six-inch rip and cut off.



A HOME-MADE SAW-TABLE.



SCROLL-SAW AND TURNING-LATHE ATTACHMENT.

I have some home-made cutter-heads for beading, and making small moldings. They have but one bit. They are made of a block of hard wood, 2 inches square, and an inch thick, with three corners cut off (see A at the left of the saw-table). The bit is fastened on with a screw. Through the center for the saw-arbor I bore with an inch bit, ⅛ inch deep, and then bore through with a ⅝-inch bit. The washer that goes on between the nut and the saw must be left off, as this block would not let the nut go on if you use the washer. There is a stud set on the piece of framing that crosses under the treadle and under the top piece of the frame. This, and the front corner-post are the hangers for the crank for the scroll-saw. A 1¼-inch hole is bored in the top piece of the frame for the pitman for scroll-saw. This stud, wheel, and pitman, are not shown in the drawing. I use Rogers' saw-clamps. The arms are fastened on with bolts threaded to within one inch of the head; one tap between the arm and standard, and one tap on the other side of the standard. The table, and also the saw, are removed when using the scroll-saw or lathe attachments.

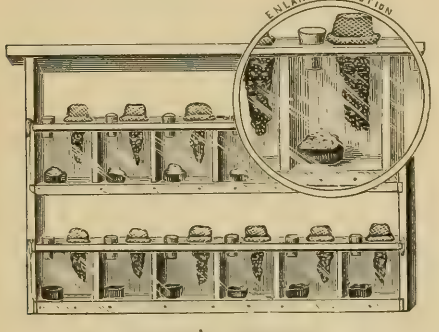
Sonoraville, Ga., Dec. 3. R. W. J. STEWART.

[Many thanks, friend S., for your excellent and explicit instructions, together with the sketches, which show almost at a glance how the whole thing is made. There are many of our geniuses who will readily be able to make a home-made buzz-saw; and many of our farmers, of a mechanical turn of mind, during the odd days of winter, when their time is not worth much, can construct one to advantage. There are others who would make one, even though the machine would cost more in the end, just for the fun there is in it, and the after-satisfaction of showing it to their friends. W. Z. Hutchinson, of the *Review*, a few years ago made a home-made saw-table. Others have done so. But the one above is perhaps as simple as any.]

GOLDEN'S CELL-HATCHER.

HOW TO CONSTRUCT AND USE.

Friend Root:—I send you to-day a photograph of my queen-hatcher and protector. This I believe to be the handiest and most common-sense device ever used. One glance at the device as shown will undoubtedly convince any queen-breeder of its utility and feasibility, from the building of a cell to the disposing of the queen. Having used a number of them the past season, and to some extent last year, and from a practical knowledge, I can heartily recommend them as above claimed.



GOLDEN'S HATCHER.

To make, take a brood-frame; remove the bottom-bar. Fasten horizontally, as above, 4 bars ⅛ inch wider than the end-bars, spaced two inches, the ⅛ inch projecting on one side, or front of the frame. The upright division pieces are the same width as the end-bars, and spaced, also, two inches apart. A strip of tin is tacked on each lower bar, and forms a sort of groove, or rabbet, for the glass front to rest in, held in place by a small button at each upper corner. A wood separator is tacked on the back. Before putting together, the bars are spaced, and two holes are bored to each compartment. The little trays to hold the good candy or honey are made by dipping a square-pointed stick in cold water, then in melted resin and beeswax, equal parts, then pressing to the bottom of the vessel of water, making a flat bottom to the little tray. When putting them into the compartments, warm them, and press them in place. They will seldom get loose, and will not leak or get out of shape. The wire cap is fastened at the back side of the frame by a small wire, which answers as a hinge. The cap protects the cell from the bees, and, when a hatched, the young queens are often fed through the meshes, by the bees.

The hole with the cork in is used to drop honey into the little trays, and to dampen the Good candy when it becomes dry. To liberate a queen, throw back the wire cap; lay your cage over the hole, and the queen will immediately ascend thereto.

The device is easily constructed, is always ready, and is adapted to all stages of a queen, from the egg by the Doolittle plan to its maturity, and may be kept an indefinite time in any colony.

The device answers most admirably in feeding sugar candy, or stimulating for early brood. For feeding, place squares of soft candy in each compartment, and tack on a one-inch strip of a wood separator in place of the glass front. The wood is warmer than zinc, and the bees have better access to the candy.

Some one may say that the bees will build comb in the spaces above and below the cages. I answer, they might do so; but in two seasons' practice I have never had a particle of comb built or even started. J. A. GOLDEN.

Reinersville, O.

[Your device is very similar to one used by Henry Alley and also by A. E. Manum. You will find the latter described and illustrated on page 629, Aug. 1, 1889. Instead of using the little wax-tray, Mr. Manum takes bits of combs and cuts one side clear down to its base. This rests horizontally on the bottom of the cage, the sliced-off side down. It is more convenient to get the queen out of one of your cages, and also, I think, to insert a queen-cell. All these devices have been used for years, and are on the same general plan. They answer their purpose very well.] E. R.

OUTSIDE WINTER REPOSITORIES.

HOW TO PREVENT THE ROOF-BOARDS FROM BECOMING MOIST, AND SO ROTTING.

I wish to thank Mr. Doolittle for his kind comments, in GLEANINGS of Dec. 15, page 876. I desire to say to Bro. D., that I believe our cellar will last longer than he apprehends, for two reasons: 1. Because there is no dampness as yet, noticeable on the sides and top: 2. Because I used very heavy oak timbers for covering. There are four 4x6 stringers laid on edge lengthwise on the top, and across these I laid two thicknesses of oak slabs, that are from two to three inches thick. On these I placed a layer of rye straw, to keep the dirt from rattling through. Up to date the bees are wintering nicely in it. The roof timbers are dry, as I proved by scratching matches on them. We keep the temperature at 40° by opening or closing some of the doors. Our eight-inch ventilator seems to draw out the moist air. Perhaps the fact that Mr. Doolittle's cellar was two feet lower in the ceiling than ours, and that he did not have as much ventilation, will account for its being so moist as to rot the timbers. It may be that, when very cold weather comes, and we shall be obliged to close our ventilator, the moisture may then collect as it did in his.

I think the discussion of such repositories is profitable, for the reason there are so many bee-keepers who need something of this kind. I am ashamed to tell it, but it is true, that I have lost in the past what I believe would have amounted to hundreds of dollars in bees and honey by trying to shift along without proper facilities for wintering. In the future I expect to place about two-thirds of my stock in out-cellars, and winter one-third outside in Bristol-Langstroth hives. I am trying twelve of them this winter.

Now, Mr. Root, every once in a while some bee-journal gives Gleanings a dig, or criticises some of your methods. With all its faults I would not give up Gleanings for the whole of them. Gleanings is the friend and helper of all bee-keepers, old and young, big and little. All such squibs remind me of a fly attacking an elephant. The best thing they can do is to let "that corner" alone. Harry Lathrop.

Browntown, Wis., Dec. 25.

[The reason that moisture condenses upon a surface is because the latter is colder than the surrounding air. We find evidences of this almost every day on the windows in winter. If these surfaces can be kept as warm as the air inside, no moisture will condense. The boards forming the roof, or support to the dirt, of Mr. Doolittle's repository, were rather thin compared with the great mass of dirt above. This conveyed its lower temperature through the boards, and caused them to be colder than the air inside, and consequently to collect drops of water. The flagging-stones, subsequently adopted by Mr. Doolittle, being a better conductor of heat or cold, were little if any better—in fact, I think worse, on account of the moisture, although, of course, they would not rot. Your roof, being 6 inches through to the dirt, would form a good non-conductor, and hence would collect no moisture, even without the ventilator. At any rate, it would be interesting for you to try it and report.

DEVELOPING A HOME MARKET.

THE EFFECT OF A HONEY ADVERTISEMENT IN GLEANINGS.

While some advocate building up home markets for honey, I should like to tell my experience. Several years ago I undertook to increase the demand for honey by leaving some with nearly every merchant in the towns around me, so as to bring it before the eyes of everybody. I was delighted at the prospect of selling large crops in the future. But what was my surprise when, one year ago last September, I found every one of those merchants well supplied with honey before there was a demand for it. Evidently I built up a market for others which left me out in the cold, with a large crop on hand. You see, the year was a good one, and the farmer had honey, and sold it for what he could get. But I learned through Gleanings that the crop was short in the East, so I told the editor that I had honey to sell. Before long I had inquiries and offers from 7 or 8 different States, and I soon sold more honey than I had. I bought, and sent away all I could get; and before spring I had a demand for my partly filled sections.

This year would be a good time to build up a home market, as very few farmers have honey to sell. But I still receive calls from that ad't in Gleanings, and some of them are such that I can't refuse, while I have honey; neither can I keep still and not let you know what is expected of the readers of Gleanings. Credit to whom credit is due.

A few months ago I had a call for honey from a firm in Indianapolis. We agreed on the price. He offered to pay cash in advance. I was afraid the quality of my honey was not what he expected, so I wrote him like this:

"I suppose you have looked me up in regard to my standing, or you would not have made that cash-in-advance offer. If you will send me the price of 100 lbs. I will send that amount—a fair sample of what I have."

In a few days the money came, and with it a letter saying:

"We never inquire into the standing of a bee-keeper who reads Gleanings and raises honey to sell such a year as this."

I think all who responded to that advertisement gave credit by saying, "I saw your advertisement in Gleanings." One neglected to sign his name. I had no more honey to sell, but wanted to answer that letter, and did not know how.

HOW TO KEEP THE ENTRANCE CLEAR IN THE CELLAR.

If the back of the hive is 4 inches higher than the front, slope 4 in 20, the entrance will not clog with dead bees. The hives can be tiered up by sliding the next back three or four inches. I have three cellars tiered that way, and they never need looking after. I have practiced it several years. J. Handle.

Savanna, Ill., Jan. 2.

BEES AND FRUIT.

VALUABLE TESTIMONY OF A FRUIT-GROWER.

Dear Bro. Root:—The question was recently asked me by a neighbor of my friend Dr. N. Q. Higbie, "Do bees injure fruit?" Now, Bro. Higbie keeps some 60 swarms of bees, while the neighbor in question keeps none; and there seems to be a very prevalent idea among those who are unfamiliar with honey-bees and their nature that their presence, in large numbers at least, works an injury to fruit-blossoms which very materially lessens the following crop of fruit. My answer to the gentleman was a very emphatic "No, sir." "But," said I, "on the contrary I consider the bees a very important adjunct to the various natural agencies which are brought to bear in the developing of a bountiful fruit crop. Having been for a number of years engaged in growing small fruits for market, I have come to see the value of bees to such an extent that I have purchased a few colonies, and intend to increase the number."

If fruit-growers understood the botanical structure of fruit-blossoms thoroughly they would recognize more readily the agency of bees in the fertilization of blossoms. Many of us are familiar with these things, but by far the greater number know or think but little about them; and it is for the good of the latter class that I write this.

If, for instance, we take the blossom of the common cherry, as an illustration, we find it is composed of the calyx, or outer covering of the bud; immediately inside of this comes the corolla, with its several petals of white. Now, when this flower is opened and spread out in all its beauty and natural perfection before us, we shall notice, in the center of this, numerous small hairlike projections, called stamens; and, exactly in the center, the pistil, which terminates in a small bulb at the bottom, which is to become the fruit. Now, the numerous stamens produce pollen, which is inclosed in minute anthers at the head of the stamens, and is the fertilizing matter which must be brought in contact with the stigma, or top of the pistil. Thus the ovules, or seed-vessels, are fertilized, or impregnated, and develop into perfect fruit. One of the agencies for the proper distribution of pollen is the wind; but sometimes if we happen to have a few still days during the blossoming period this would be inadequate to the designed purpose; so nature has placed a little drop of sweet deep down in the flower, at the base of the stamen; and our little friend the bee comes flitting about in search of nectar for his future winter store, and, discovering the tempting morsel, he literally stands on his head in an effort to reach it, and in so doing his back becomes dusted with pollen from the stamens; and as he reaches down into the flower his back is brought in direct contact with the pistil of the flower, thus performing a very important work in nature's great panorama.

Who has not noticed bees coming into their hives, in the season of fruit-bloom, with their backs so covered with pollen from the flowers that they had the appearance of being a different race? Truly there are wonderful things in nature, and it seems as though no individual can fail to see the agency of a higher power in the design of these things. Verily, "All things work together for good to them that love God."

Elsie, Mich., Jan. 2. I. A. WOOLL,
Proprietor of the Oak Grove Fruit-Farm.

[Friend W., this is a matter that ought to be strongly emphasized and most emphatically taught. Right in sight of where I am writing is a strawberry-bed of strong, rank, thrifty plants. They are Bubachs; but there has not been a decent berry in the whole patch for two years, just because there are no perfect-flowering plants near them that they may be fertilized. They were red with berries, but they were all stunted, twisted, poor, insignificant specimens of strawberries. Now, my opinion is, that many of the poor, imperfect cherries, plums, apples, etc., that we see in various localities is because there are not bees enough kept to insure perfect fertilization. Market-gardeners have tested this matter so thoroughly that they now invariably keep one or more hives of bees in every greenhouse where they undertake to raise fruit, cucumbers, or any thing that requires the agency of the bees.]

ERNEST'S NOTES OF TRAVEL.

A VISIT WITH DR. C. C. MILLER.

After leaving the Dadants, Dr. Miller and I took the train for Marengo; and such a time as we did have visiting! On the sleeper that night we talked till the "wee sma' hours" of the morning; and after sleeping for two or three hours we again commenced it. We changed cars and then began to argue about some of the new fixings, and the probable outcome of thick top-bars, fixed distances, outside winter cases, and width of sections. Although I was very sleepy, Dr. Miller would, every once in a while, say, "Now, about that width of section. Are you sure that it would be wise to recommend to your trade $1\frac{7}{8}$ instead of $1\frac{15}{16}$ next year?"

I was *so* sleepy that I did not know what was wise, and, in fact, I did not care very much. I finally began to revive a little bit under the temporary stimulus of a good crisp apple which the senior Dadant handed me just before we left. Dr. M. would not eat between meals, but I felt a good deal better, whether it was in accordance with the laws of health or not. In response to his question I said, "Yes, sir; the trade demands a section a little less than a pound; and we, as supply-dealers, are obliged to cater to their demands, more or less. Besides," said I, "doctor, don't you see that with $1\frac{7}{8}$ sections you can use a follower and wedge in a super $12\frac{1}{8}$ wide inside? From what I saw in my trip in the East I am thoroughly satisfied that the sections wedged up in supers save a great deal of afterwork in scraping. All the 'big guns' in the East do it. Almost all L. supers are $12\frac{1}{8}$ wide, and in these you can not wedge up sections $1\frac{15}{16}$ thick with a follower and wedge."

The doctor nodded his head with a somewhat doubtful assent.

"But, see here, Ernest," said he, "do you think it is right or fair to sell a section, that weighs less than a pound, for a pound section?"

"No, I don't," I replied; "but sections are sold by the *piece* largely, nowadays."

So on we argued. I do not quite remember how we came out. Every once in a while our conversation broke off with, "Oh! by the way, Ernest, I want to know about those Hoffman frames;" or, "You haven't said yet how your bees are wintering in the cellar;" "Say, doctor, you did not tell me how your thick top-bars work, that you 'doctored' up with pieces of separator stuff."

Whenever friend M. cornered me in argument it was convenient to change the subject. So on we discussed persons and things until we reached Marengo. I had fixed out in my mind's eye that the town was so and so; but every thing was just the other end to. As we stepped off the train the doctor said, "Yes, there's Em with the horse."

Most of our readers know that "Em" is Dr. Miller's sister-in-law, the one who helps him in the bee-yard. Although I felt as if I knew her, of course I had to go through the formality of the usual introduction.

We drove for about half a mile, till we arrived at Dr. Miller's home. It is situated quite a little distance back from the street, upon a considerable knoll overlooking quite a stretch of country. The doctor had told me that I need not expect to see any thing very orderly; that his hives were such as nobody but himself would tolerate, etc. He evidently did not intend that I should raise my expectations very high.

Just as I alighted from the buggy I turned about, and there was his apiary, ready to go into the bee-cellar soon. This, if I remember correctly, comprised all of the home yard and a part of an out-apiary. The apiary looked very neat and orderly, and the hives—why, they did not look bad at all. It is true, they were not painted, and never have been. They had formerly been old ten-frame Langstroth portico hives. Gradually the doctor had imbibed the idea of eight instead of ten frames, like the rest of us. To make them eight-frame he pried off one side of the hive, cut off about two inches of the ends, replaced the side removed, and narrowed the cover of the bottom-board, and it was not such a very long job either.

The hives looked very much like ordinary Dovetailed hives without the dovetail. At the time of my visit, the bottom-boards had all been reversed, and screwed on upside down—that is, in such a way as to leave a two-inch space under the frames for winter. A large-mesh wire cloth was let down into perpendicular grooves in the bottom-board, closing the entrance to rats and mice while in the cellar. Bees, of course, could pass in and out.

While the doctor was putting up the horse I was thus engaged in the apiary. It was a little cold out, and so we went in to warm, where I had the pleasure of meeting Mrs. Miller. She, like her sister, is a true type of one of those whole-souled, kindly-faced Scotch women whom it is a genuine pleasure to meet. Both of the women-folks know how to handle bees, and Dr. Miller asks for no better assistants in his yards.

DR. MILLER'S BEE-SHOP AND HONEY-HOUSE.

If there is any thing that gives a fair index to a bee-keeper's notions, and of his methods of work, it is his workshop, or, rather, its contents. Over in one corner you will find things that he has tested and found wanting. And then, there are other conveniences that he could not dispense with. Over on that shelf maybe something new under the sun, for which he has very great hope. Perhaps the shop is orderly, and perhaps it is full of useless truck.

Now, I had expected to find Dr. Miller's shop a model of—disorder, and perhaps my expectations *might* have been realized; but it so happened that the women-folks have a hand in the work in the shop, and the doctor says it is "real handy" to have them around to straighten things up once in a while. Why, no, his shop was very orderly. He did not have a lot of expensive tools, but I noticed that he had good hammers, good saws, and a good assortment of nails arranged in very convenient boxes. These boxes the doctor has promised to describe, and his description will appear in a forthcoming issue soon.

We fell to arguing on the subject of T supers versus wide frames. He is still very much pleased with T supers; and the more he uses them, the more he seems to like them. But then, he says he does not know when he will cast them aside for something better. Of course, I argued for the topless wide frame; viz., the section-holder.

"Why," said I, "it protects three sides of the sections from the travel of the bees. I always noticed that the exposed surfaces of sections become a little bit yellow in time. If honey is coming in rapidly, and the sections are removed as soon as capped over, this yellow soiling is not so apparent."

The doctor insisted that it was not so bad but that his customers would tolerate it, and, besides, he could secure a crop of honey in T supers with less work. He had tried a few section-holders, and did not like them; and in evidence he showed me a few of them that I had sent him to be tried.

We pulled over several piles of T supers. In all, I noticed the bees had chinked in considerable propolis between the *edges* of the sections.

"Now, doctor," said I, "I want you to try wedging them up tight another year, and see if you do not save time in scraping propolis off. By the way, doctor, did you use those thick top-bars I sent you?"

"You sent them too late," said he, "and I hadn't time to put them in the hives then."

"Yes, I remember we were very much behindhand, and could scarcely fill our regular orders."

"I will show you the top-bars that I reinforced with separator stuff later, in the apiary."

Then the doctor showed me his double-tier shipping-cases. He used thin veneer boards between the two tiers of sections. This virtually made two single-tier cases, and at quite a saving in expense. Two strips of glass are used to display each tier. Turning from this we went upstairs.

"What does all this mean over in this bin?" said I.

"That is where we put our cast-away Clark smokers."

"That looks bad," I said. "Either you are very hard on smokers or else the Clark smoker is a very poor one."

Picking one up I observed that it had the old-style small blast-tube.

"Yes," said the doctor, "they are the old style of smokers. They did not last very long, and it was cheaper to get new ones rather than to fix the old ones up. Your new smokers, with large blast-tubes, are a very great improvement, and they stand hard usage in the apiary well."

"Do you use them in preference to the Bingham?"

"Yes, on some accounts we like them better. Em is partial to them because she can blow smoke with them at a long range, and she can force it clear through the tall piles of supers on account of the strong blast."

The doctor showed me an improvement, which he had made. With a wire nail he had punched 25 or 30 small holes in the sliding fire-door of the smoker, and said sliding door was made to shut tight so the sparks could not drop out. The rear draft has to pass through the aforesaid perforated holes, and these are too small to drop fire. This made the smoker almost faultless. The improvement pleased me so well that I said we would put it on our new smokers.

"What is that hanging up against the ceiling?" said I.

"That is a foundation-fastener that somebody kindly sent me. I do not know that I shall ever use it."

There were other things that had been sent him in the same way, and which he had neither the inclination nor time to try. Among them were some things that I had sent.

We then went out into the apiary. As usual, on the matter of covers we could not agree. Dr. M. wanted his cleats nailed without grooving on the cover-board, and he did not want the cover itself to stick over the hive. I insisted that a board is less liable to warp if let into a groove. Besides, in making hives in large quantities, these grooves are an easy thing to make. Some of the doctor's covers, I noticed, were a little warped, but then they had been long in use.

"But there is one thing I must have," said he, "and that is end cleats on the hives for handling them. Your handholes are hardly sufficient."

"But those cleats stick out in the way, and are an extra expense," I urged; "and if you would once get used to handholes I think you would like them."

"But, see here," he said; "in carrying hives into the cellar, all I have to do is to catch an endless rope over the ends of the cleats, and, with an assistant, the hives are easily picked up and carried into the cellar; and, when set in their places, the rope is easily removed. Your wire bails can't be disengaged so easily."

"Oh, yes!" said I, forgetting all about the handholes, "let me be your assistant in this job."

Dr. Miller went down into the cellar and produced a large soft rope. Lest some of our readers have forgotten how he picks up his hives and carries them into the cellar, I will here reproduce the engraving we made a year or so ago.

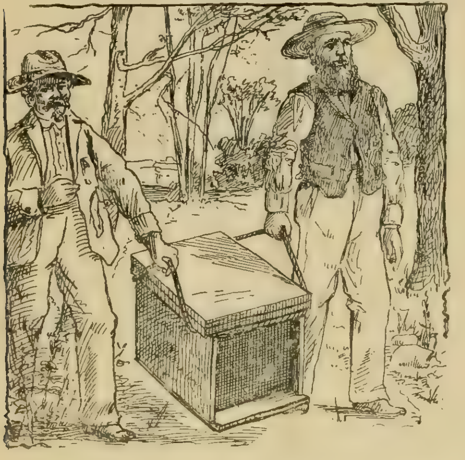
He quickly slipped the rope over one of the ends of a hive, and "There," said he, "get hold of the other side."

I did so. It was certainly very handy. We carried in a few colonies, and put them in the cellar.

"That's fun," said I, "but don't you like those bails which I sent you, for lifting up bottom-board and all?"

"No, I don't think they are nearly as convenient."

"And now," said I, "if I could have you at Medina, as you have me here at Marengo, I believe I could make you think they are at least good, but perhaps not quite equal to your ropes, with cleats on the ends of the hives to carry."



DR. MILLER'S METHOD OF CARRYING HIVES INTO THE CELLAR.

He has two bee-cellars—one under the house, and one under his workshop. Both are good-sized—about 15x15x7 feet, each capable of holding from 150 to 200 colonies, I should think. Neither was grouted, and the bottom was simply pounded clay. It had a hard dry surface, and could easily be swept. The walls had just been whitewashed—not so much for appearance' sake as for a purifier. It is well known, that whitewash is a purifier of walls. After a cellar has had bees in it over winter, it needs not only good airing but cleansing.

After we had stepped from the cellar I asked to see his thick top-bars. He did not know exactly where the hives were; but by a little hunting we found them. There was no burr-comb on top of them, and so far he regarded them as a success; but he was not so positive as I that they would take the place of honey-boards entirely. Dr. Miller, you know, is never positive about any thing. He is always open to conviction.

We then went into the house, for it was a little cold outside. After we sat down we talked queens. I was quite interested in his experiments in raising queens. He had not been successful with the Doolittle method, but Alley's plan had worked very nicely.

"Doolittle," I said, "makes it work to perfection. Why can't you?"

"I can not tell," said he; "and we were very careful to follow his instructions to the letter."

Dr. Miller now produced his record-book. His hives are all numbered, and each number corresponds to a space in the book. As we sat there that evening looking the book over, I was very much interested in reading over the memoranda of the several colonies.

Having been up late for several nights, I retired early. I spent a delightful Sabbath with Dr. Miller and his family, and had the pleasure of seeing him officiate as superintendent of their Sunday-school. The doctor is considerably interested in Sunday-school work. As most of our readers may know, who have attended conventions, he has a big talent "along that line."

To be continued.

THE WORLD'S COLUMBIAN EXHIBIT.

SUGGESTIONS IN REGARD TO THE APIARIAN DISPLAY, FROM DR. A. B. MASON.

Friend Root:—My "noddle" has done lots of thinking about the apiarian exhibit at the World's Columbian Exposition for 1893; and yesterday, Dec. 29, I thought of this plan for State work:

Let each State bee-keepers' society appoint a committee to look after the securing of an appropriation by the State legislatures or assemblies, for the making of a suitable exhibit. Also another committee to see that the honey, bees, beeswax, foundation, and every thing relating to our industry in their State, is collected and made ready for exhibition; also choose the best man or woman they may be able to secure, to go to Chicago and put every thing in the best possible shape and position for the best possible display, and look after the State's exhibit during the exposition, and then repack every thing and return to the owners.

"Now, this all looks easy enough on paper," some will say, "but how are we to be paid for our trouble and expense?"

Well, that is just what has bothered me, and is what I have been trying to "grasp by the horns." This very subject helped to get me 500 miles from home to attend the convention at Keokuk, in the hope that some one I might meet would solve the difficulty for me. Vain hope! No one I consulted knew more than I did about it. They were all like the mischievous boy John, in school. We have all heard of him, if we've not seen him. When the teacher asked Jim what he was doing, he replied, "nawthin'." The teacher then asked John what he was doing. The reply came promptly, "Helping Jim."

Till yesterday I've not been able to think of a plan, and found no one who could give me any "aid or comfort." I've thought over and over the offering of premiums in some shape, but nothing satisfactory presented itself. With the premium plan, somebody (and probably several somebodies) would "get left." By the plan I suggest, each would get just the amount he will be entitled to.

The plan is this: Let each one who is willing to help make his own State exhibit what it ought to be, notify the committee above spoken of as to what and how much he will exhibit, making an itemized bill of what he is willing to furnish. For example, some one says, "I will furnish –

500 lbs. comb honey (basswood) in 1-lb. sections, 25c per lb., 100 lbs.	$18 00
100 lbs. comb honey (buckwheat) in 1-lb. sections.	
500 lbs. extracted honey (white-clover) in 2-lb. Muth honey-jars; single, 35c; dozen	3 75
1 straw bee-hive, 50 years old.	
1 smoker (Bingham's)	1 75
1 colony bees (Italian) in Langstroth portico hive	8 00
1 colony bees (Carniolans) in Simplicity hive	6 00

Every package, or article of every kind, to be *distinctly* marked with the owner's name and postoffice; and if for sale, have the price also marked on it. Then let the committee say what they think best to have placed on exhibition, and then the owner can prepare and ship all to Chicago, with all charges paid, directed to the party having charge of the arranging and caring for the exhibit.

The reason I suggest that the committee say what should be sent is this: Perhaps ten or twenty might be willing to send one or more bee-hives, colonies of bees, etc., when but one of a kind would be needed; but the more honey and beeswax sent, the better.

Now for the most important part—the *pay* for all this work, risk, and expense.

From the amount appropriated by the State, pay all expenses incurred at Chicago, including the pay of the party having charge of the exhibit, unless otherwise provided for by the State. Then divide the remainder among the exhibitors according to what they have on exhibition, so that one exhibiting a colony of bees or a crate of honey or other articles, will get the share to which he may be entitled.

A person sending 2000 lbs. of honey would be entitled to twice as much pay as one sending 1000 lbs., provided other things are equal; for certainly no reasonable person who sends a thousand pounds in tin cans could expect as much pay as one who sends the same amount nicely put up in glass receptacles of different styles. But there are unreasonable people in all pursuits, and ours is not an exception.

When the exposition is over, the person in charge should repack, without charge, and return to the owners every thing not sold.

With such an arrangement, all things would be in common for the display from each State. The honey belonging to A, B, and C, would be used just as though it all came from one person, so as to make the best possible display; and each package being marked with the owner's name would tell to whom it belonged.

It is more than probable that parties placed in charge of some of the State exhibits will know but little about arranging things so as to make the best display, and perhaps have less taste than knowledge. In such cases, some one who *has* the taste will have to be hired to do the arranging.

Perhaps the next N. A. B. K. A. meeting will formulate some plan for general adoption; but in the mean time, working and planning should go forward. A. B. MASON.

Auburndale, O., Jan., 1891.

LATER.

The secretaries of some of the State bee-keepers' societies have written me for suggestions to be submitted to their societies at their coming conventions; and yesterday, Jan. 5, I answered three of them, giving the above plan in brief, because their societies meet before this will appear in GLEANINGS.

Since writing the above I have attended the Michigan State bee-keepers' convention at Detroit, and suggested the above plan to them, and they have started "the ball rolling," and appointed the needed committees.

Another suggestion might perhaps not be out of place. Some States have no bee-keepers' societies to organize the work. Would it not be a good plan for the leading bee-keepers of such States to get together and organize, or, by correspondence, agree upon some plan, and appoint suitable persons to look after the needed legislation and appropriation, and for doing all other needed work? for if this matter is left over till next winter it may be too late.

A. B. M.

MAKING SINGLE-WALLED HIVES OUTDOOR WINTER HIVES

BY THE USE OF BUILDING-PAPER.

Apropos of the discussion concerning double or single walled hives, I suggest a simple, inexpensive, and practical plan for the construction of hives.

Tack one or two thicknesses of building paper all around the inside of the hives, which is to be kept in place by tacking on narrow strips of wood or tin. Put a layer or two on the bottom-board, and over that nail half-inch lumber the size of your bottom-board. It will cost but 15 or 20 cents extra. To prepare your bees for winter, all that is necessary is to put on the upper story, place over the brood-frames some cobs or a Hill device; fill a small gunny sack with leaves, press it down tightly so as to prevent heat escaping upward, and your bees are in the best possible shape for outdoor wintering. The sacks can be stored in a dry place when not in use, and used for years without replenishing. I have found that there is no necessity whatever for dead-air spaces and great bunglesome hives. This I have demonstrated by actual experiment. Paper is a non-conductor of heat and cold. Wrap your feet in a piece of strong paper, and you can ride all day in the coldest weather with warm feet. Put a newspaper around your body and you can withstand the most intense cold. I put paper covering over my bees to keep them warm till I put them in the cellar, and for a number of seasons I did not remove it until I placed them on the summer stands. A. C. TYRREL.

Madison, Neb., Jan., 1891.

[Very possibly the building-paper will answer. If you mean tarred paper, it would be rather distasteful to the bees. Paper itself is very warm; and when Mr. Danzenbaker was here a year ago he was continually advocating layers of paper instead of chaff packing. He argued that it was just exactly as good, and a great deal cheaper. It is hard to say just yet what will answer for our northern localities; but enough has been suggested to set us to experimenting in earnest.]

[In addition to what Ernest has said, I will say that paper lining for hives is a very old idea, and has been taken up and dropped several times within the last 25 years. One great objection is, that it gets damp and wet. The hives become soggy, and they can not be dried out as can a chaff-packed hive. I should like to have Doolittle and others, who once used paper, to tell us why they gave it up. Our house-apiary was made with several thicknesses of building-paper, with air-spaces between them; and although it is above ground, it is a cold, damp, soggy structure, even in the summer time. Perhaps a very loose, porous paper might be found that could be put on in such a way as to let it dry out as chaff does.]

FORETELLING THE WEATHER, ETC.

POPULAR SUPERSTITIONS.

Mr. S. Morrett, Akron, Ind., wishes me to answer through GLEANINGS the following questions:

1. "Would killing chickens by a mink make them in any way unfit for table use?"

I see no possible reason why it should.

2. "Do any of our animals, like the insects or higher animals, by their preparation for winter or otherwise, show that they are in some way forewarned as to whether the winter will be severe or mild?"

I have no idea that there is a grain of truth in such views, although I know that they are current among many, especially of the last generation. The same people plant in the moon, think fireweed grows spontaneously, that chess turns to wheat, and that patent medicines have startling virtues. I believe a better education dispels such views.

3. "Many claim, that, when the muskrat

builds high, there will be severe winter or high water."

Very likely; this is just as likely to occur as though the little rodent built low. Happily the muskrat does not make the weather.

4. "Some bee-keepers say, if the drones are killed early, the winter will be severe, and vice versa. Is there any truth in it?"

The past season, drones were killed in early summer, and yet the weather is and has been remarkably mild. The same was true a year ago. The weather at the time, in affecting the harvest, leads to this premature destruction. There is, however, no possible relation between such events and the future. When men knew little of nature they were ripe for such superstitions. With the development of science, such beliefs will become wholly a thing of the past. A. J. COOK.

Agricultural College, Mich., Jan. 3.

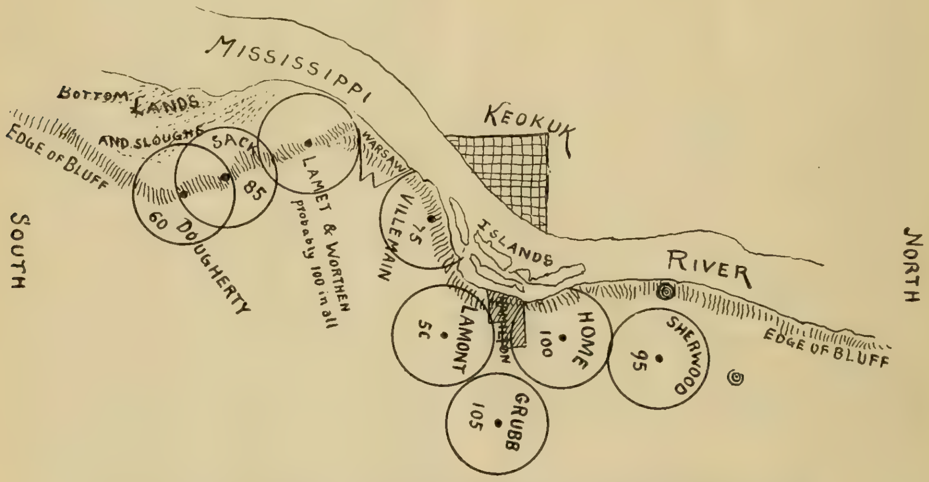
[I want to say amen to Prof. Cook's replies. Our nation is full of rural people, especially those well along in years, who insist that animals have foreknowledge of the weather; and the amount of time spent watching these senseless movements, if turned in the line of scientific investigation, would enrich the world. Let us do away with superstition, and turn our brains to the solution of real problems.]

ARRANGEMENT OF OUT-APIARIES.

DADANT'S SYSTEM ALONG THE MISSISSIPPI RIVER.

Friend Root:—The very interesting article of Mr. France, on out-apiaries, page 883, has induced us to give you our own experience in this matter, not because we can throw any more light on the question, but because our practice, which extends back to 1871, in the matter of out-apiaries, confirms the views of both Mr. France and Dr. Miller, and will add weight to their statements.

Under ordinary circumstances it is not advisable to place apiaries nearer than four miles apart; but Dr. Miller is undoubtedly right when he says that the configuration of the land has a great deal to do with the greater or lesser distance that the bees will travel in certain directions.



THE DADANT SYSTEM OF OUT-APIARIES ALONG THE MISSISSIPPI RIVER.

In the accompanying diagram you will perceive that these apiaries are all located on land sloping toward the Mississippi River, and are separated from one another by creeks and groves of timber land. The Grubb apiary is owned by D. W. McDaniel, who has had charge of our apiaries also for a few years past. Of all these apiaries, the Sherwood is the best in the product of both spring and fall crops, although there are seasons like the past when the fall crop fails there altogether.

The Villemain apiary has the poorest location, to all appearances; but it is located near the only basswood grove there is in the country, and has also quite a fall pasture from blossoms that grow on the islands near it. But what will you think of the Sack apiary, which is located a little over two miles south of the Lamet apiary, with another apiary close to the latter, and not shown on the diagram, and only one mile and a quarter north of another apiary of 60 colonies, owned by A. Dougherty? Yet this Sack apiary gives us the best average of honey of all, excepting the Sherwood apiary. The reason of it is, that the pasturage is all west of it on the river bottoms, and very abundant. It is probable that the bees in this apiary go as far west as the river, about three miles, while they perhaps do not travel over a mile east on the bluffs. Their course north and south, in the direction of those other apiaries, is over a hilly country covered more or less with timber, which makes their flight more difficult.

The two small circles in the north part of the diagram show spots on which we have had apiaries formerly, and which, you will perceive, were further away from home than the present. At that time the Sherwood apiary did not exist, nor did the Grubb apiary; and yet we must say that we can see no difference in the yield of the home apiary. We are satisfied that the Grubb bees go east, the Sherwood bees and the home bees northeast, for their crop. When we say the bees go in a certain direction, we do not mean *all* the bees, but the greater part of them. We can give you one convincing instance of the correctness of this opinion.

By glancing at the diagram you will notice that the home apiary is just about a mile and a half from the north point of an island in the river. In certain seasons these islands are covered with water in June; and after the waters recede they become covered with a luxuriant vegetation, and the yield of honey from them is very large. In one of these seasons we found a colony, belonging to a neighbor, located half way between us and the river, harvesting a large yield of honey from this source, while our bees harvested nothing. Is it not evident that our bees had not gone that far? Yet we have seen them two miles and more from home in another direction.

Had we kept as careful records as Mr. France did, we should probably also be able to derive some good lessons from these records; but we are sorry to say, that, although we have harvested enormous crops of honey from our bees, we have been rather careless about keeping a record. If we had things exactly as we ought to have them, in the matter of location, we should spread all the upland apiaries a little more, and place them, say four or five miles apart; but there are lands like those Mississippi bottom-lands which can support apiaries very close to one another, and make money for their owners. C. P. DADANT.

Hamilton, Ill., Dec. 23.

[Thanks. These drawings are exceedingly helpful and valuable. The Sack apiary, in the diagram, is a remarkable illustration of the fact that the lay of the land has sometimes a decided influence upon the bee forage, and that we can not always lay down rules that an apiary should be just exactly three or four miles from each other in all cases. These exceptions are interesting, and there is no way that we can decide where we can locate apiaries profitably except by trial. Of course, we can be guided to a large extent by swamps, ranges of hills, proximity to water, etc. You do not give the size of the circles in miles; but from reading your description I can gather pretty nearly that they are about 2½ miles in diameter. From this the reader can gauge pretty fairly the relative distances. A great many interesting facts are being developed. A. E. Manum has sent in a diagram which we will present to our readers in the next issue.]

THE MICHIGAN STATE CONVENTION AT DETROIT.

HELD JAN. 1 AND 2.

While this convention was not largely attended, those present were perhaps among the best and brightest bee-keepers, not only to be found in Michigan, but I think they compared well in intelligence with any we have in the world. One who is accustomed to attend conventions will very readily pick out those who are in the habit of attending either bee-conventions or conventions of any kind. It seems to be something like this:

The man who has never attended conventions, or who has not done so for a great while, is the more apt to be hasty in coming to conclusions. He is also, as a rule, more ready to think evil. He imagines that the world is full of corruption, and that even bee-keepers are more intent on finding a chance to steal and not get caught than they are to find some way whereby they can be helpful to their fellow-men. The worthy president, Prof. Cook, has, perhaps, done much to bring about this better state of affairs. How natural it sounds, to hear him say, when some absent member is violently attacked, "Oh, no, my friend! If you knew the brother as well as I do, you would not think of charging him with such a thing."

Sometimes, it is true, he is obliged to admit that some brother has done a very foolish and possibly a very wicked thing. In such a case he reproves the guilty one in such a gentle, kindly way, and in a way that stirs him to a tremendous resolution to do better next time, that the spirit is really contagious. Please do not imagine that he ignores and smooths over all the wrongs that exist in society, or in bee culture, if you choose. He will sometimes speak right out in the convention, something like this:

"Now, Bro. ———, since this matter has come up right before us as it has to-day, will you just let me say that I have felt greatly pained, many times, to see you go to such extremes in this direction? Here are all these good friends of yours who disagree with you. Now, will you not, for their sakes, and out of respect to their opinions, withdraw a little from your vehement views, or, at least, put it a *little* milder?"

The kindly look in his face, at the time he speaks, prevents anybody from taking offense; and, in fact, jangles or hard words at bee-conventions are unknown when Prof. Cook is present. During our last convention we discussed many matters where there was pretty strong disagreement; but it was from first to last characterized by a spirit of brotherly love that I am sure every one of us carried home; and I feel, too, that its influence is going to make us better men for a *long time* to come.

DOES IT PAY TO USE SUCH LARGE QUANTITIES OF COMB FOUNDATION?

You will remember that this subject has been up in the bee-journals, and there has been some intimation that editors interested in the sale of the article may, at least unwittingly, have kept purchasers in the dark. Our good friend R. L. Taylor was called upon to open the subject; and by some means it fell upon myself to ask him some questions. I was somewhat surprised, and a good deal amused, to hear him insist so emphatically that we can not afford to have combs built without foundation. He said that, inasmuch as combs would last us a great number of years, the *first cost* is but a small consideration. He would have the sheets fill the frames. When it came to a rising vote, the bee-keepers were almost unanimous in indorsing his view. Foundation for section boxes brought forth much the same decision.

The number present who had out-apiaries showed very conclusively that there is a wide difference in the honey-yield in localities only two or three miles distant. A man may have a good yield of honey, while his neighbor three miles away gets almost nothing. This indicates the importance of testing different points in your locality, say three or four miles away. When you strike a point where bees seem to do best, gradually increase the number of colonies until you ascertain how many can be profitably located at a certain point. This will also help us to avoid the disaster of bad seasons. It is a little on the plan of not putting *all* your eggs in one basket.

ADULTERATED LIQUID HONEY.

It is a sad fact, that there is once more considerable spurious honey offered for sale. Samples were on the table, brought from some of the Detroit groceries. One could readily judge by the taste that both cane sugar and glucose were used in getting up the mixture. It was labeled "Michigan Honey," but, of course, the name and address of the party putting it up were not to be found on the label. This alone is a plain violation of the laws of the State of Michigan; and some of us were vehement in demanding that the guilty parties be prosecuted at once. As friend Taylor, however, sat in a thoughtful attitude with his head down upon his hands, I suggested that we hear from him.

As he did not seem inclined to say any thing, we bantered him somewhat; and in response to a question of mine he said he would cheerfully answer any questions I might wish to ask. Now, as there is much wisdom in his reply, especially as he is a lawyer of experience, and a member of the State Legislature, I will try to give his replies here.

"Friend Taylor, have we not ample proof right here before us, so that it will be an easy matter to bring these guilty parties to justice?"

"Well, the proof is plain enough, friend Root; but I am sorry to say that it will not probably be an easy matter to deal with the offenders. They have plainly violated the laws of Michigan, it is true, in putting honey on the market without the name of the producer, providing we can *prove* that which we all *know* very well—that this honey is not the product of the bees. Unfortunately, our chemists are at fault. Our good worthy president, Prof. Cook, took some honey out of his own hives, at the college apiary, and sent it to Prof. Wiley, at Washington, who pronounced it, after a chemical analysis, *adulterated*."

This raised quite a buzz, and I guess there was some indignation in the buzz. I turned to Prof. Cook, and asked him if it was the same Wiley who started the story about manufactured comb honey. He assented, and then *I* commenced to boil over. Now, here is a sample of Prof. Cook's gentleness, and, I think I may say, wisdom. He replied something as follows:

"Friend Root, Prof. Wiley *has* made some mistakes. It is true, he did pronounce the honey impure that I took from my own hives; but before we condemn him too severely, let us remember that the best chemists we have in the country have made the same blunder. Perhaps we had better acknowledge that chemistry is not to be trusted with absolute certainty at the present time, between manufactured glucose and the glucose, or grape sugar, that is found in flowers. Before we condemn friend Wiley too severely, let us bear in mind that he is an excellent man, and one who has done excellent service in many departments of science for our country."

Friend Taylor added further, that he presumed if we, as a body of bee-keepers, were to take oath that, according to the best of our knowledge and belief, the samples of honey before us were composed largely of cane sugar and glucose, something might be done. The offenders, however, were said to be a rich manufacturing institution, who put up pickles, jellies, and other things, in glass tumblers. One man would stand a rather poor chance in opposing them; and I believe our best advisers incline to the idea that the Bee-keepers' Union had best take the matter in hand.

I tell you, friends, the great reforms of the present day are conducted by those who work slowly and carefully. Instead of boiling over, and condemning those who have capital, as a whole, shall we not bottle our indignation for the present, and —— send Bro. Newman a dollar to make us a member of the Bee-keepers' Union, and let *him* manage these matters?

Now I fear I must direct you to other bee-journals for fuller reports of the proceedings of this convention. For the present I want to tell you about my visit to

D. M. FERRY & CO.'S GREAT SEEDHOUSE, DETROIT, MICH.

I started to get up as usual, somewhere about six o'clock. Somebody in the next room called out to know whether myself and friend Hilton (my room-mate) were starting out for greenhouses. I answered eagerly, "Why, to be sure, we are. Get on your duds quick, and go with us."

"But, may be when you find out who it is you won't want him along."

"Yes, I do want you to go along. There is not anybody in the world, who wants to go, whom I do *not* want to go along."

After I had said this I began wondering whether I told the truth. Oh how glad I felt, as I searched my heart, that I had told the full plain truth! If I *have* an enemy in the world, he is just the man I should like to take by the hand and show him the greenhouses in the early morning. (Yes, I should rejoice to take, on such a trip, even our poor mistaken friend Hill, of the *Bee-keepers' Guide*, who has labored so long and hard to hold up before the world both my fancied and real weaknesses and imperfections.) I thought the voices in the next room sounded somewhat familiar, but I could not quite make them out, and they had a good deal of merriment at my expense. Well, they were no other than two of my best friends, M. H. Hunt and R. F. Holtermann. It was friend Hunt who suggested going to Ferry's new seedhouse instead of to the greenhouses. I owe him a big debt of gratitude for a lot of other similar deeds of kindness.

This wonderful structure has been built only about two years, on the site of the one previously burned. It is 300 feet long and 120 feet wide, and has between *seven and eight acres* of floor space. Now, when I tell you that it is seven stories high, and every floor occupied, you may wonder as I did, that so little has been said about such a tremendous enterprise. Like our own establishment, this one is, a great part of it, in charge of women. A woman gave us a permit to go through the rooms. Crowds of bright, intelligent-looking women, passed up the stairs with us, put their cloaks and hats nicely away in cupboards made especially for them (a separate cupboard for each cloak), and then took their places in the handsome offices that filled a part of one of the great rooms. These offices are finished off in the handsomest style of present office architecture, and it was a great study for me. Decorated wire cloth separates the clerks from each other, so each one has really a little room of his own, as it were, where they can not be annoyed by visitors or by each other. The bins, drawers, pigeon-holes, and other arrangements for the rapid classifying and mailing of seeds, showed wonderful skill and ingenuity; and, further on, the rapid movements of the girls as they took up their work put to shame any sleight-of-hand performance I ever saw. One of the girls worked so rapidly in pasting up packets of the seeds that I asked her to please go slow enough so I could see what she was doing. She smiled as she did so. The paste they use is about the consistency of butter, only not quite the color. A little bit is taken on the end of the finger. In their rapid movements this finger is stuck straight out when not needed, so as to be out of the way; and one is astonished to see that the paste gets just where it is wanted, and nowhere else. At another table dozens of girls were dipping up seeds with teaspoons, and putting them into the open mouths of printed packets. It looked for all the world like feeding ducks with a spoon. Each duck, however, got only one spoonful. A man sat at a raised desk in the center of the room. By the way, where there are so many hundreds of young people, it is not any wonder that an elderly one is needed for a boss. A good many of the young eyes sparkled with fun and mischief, especially if they could catch sight of any glimpse of a smile lurking around the corners of the mouths of the visitors. And I tell you, there does not want to be very much fun or "cutting up" when you are putting up seeds. Remember what I said about 20 cents' worth of cabbage seed, on another page. There are between 800 and 900 people employed in this one building. They have the same Grinnell system of sprinklers we have. The rooms are warmed by steam, as ours are, and lighted by 1000 incandescent lamps. Surplus seeds are stacked, tons upon tons, in bags piled up in neat square tidy piles. I wondered whether rats and mice ever found a harboring-place in this immense institution. My keen olfactories did not advise me of the proximity of any of these mischievous rodents.

Ferry's specialty is, as you may know, furnishing the groceries and country stores of the United States, and perhaps the world, with garden-seeds. In order to do this the boxes are sent out on commission, and called in before Jan. 1. Our visit was just in the nick of time. Their plan of giving their customers the best seeds is something like the one I have indicated elsewhere. Old seeds are not *always* inferior. But they protect their reputation by a careful testing, winter and summer. I was pleased to notice how they manage to keep their seed-cases clean and bright, after taking their chances in transportation, and being kept during spring and summer in the average show window of the village store. Their boxes and cases are all dovetailed, like the Dovetailed hive. The bottoms are put on with a nailing-machine, or with screws. These latter are also driven home with machinery. All nails and screws are sunk below the surface of the wood; then when the box comes back it can be run through a suitable planer or sandpapering - machine, and made new all over quicker than you could wash it all off with brush and soapsuds. New labels are then put on; new seeds (or old ones that stood satisfactorily the test) are then put in new packets, and the cases filled up with such an assortment as the great world demands, and sent off to do duty. Now, do not find fault, or complain of sending seeds out on commission. If they did not do their business honestly and well, they would never have built up such an immense institution. If nearly 1000 are employed in this building, how many people do you suppose D. M. Ferry & Co. keep at work during the summer time? Here we have illustrated the wonderful way in which nice work and accurate work can be done at a comparatively small expense. Those girls could never acquire that wonderful swiftness did they not put up thousands upon thousands of packages; neither could the other enormous machinery of such a business be used with so little expense in any other way. I should like to tell you more, but space forbids, just at this time.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 176. *Do you think bee-keepers have secured any advantage from the Government Experiment Station? 2. Is it desirable to make any effort to induce the government to do any thing more for our industry?*

No.
Ohio. N. W. H. R. BOARDMAN.

1. Yes; every *little* helps. 2. Yes.
Vermont. N. W. A. E. MANUM.

1. Very little. 2. Remove the custom duty on beeswax.
Illinois. N. W. DADANT & SON.

No, not as a general thing. 2. The Lord helps those who help themselves.
Illinois. N. W. C. MRS. L. HARRISON.

1. Perhaps a little. 2. I think the advantages are not enough to make the effort desirable.
New York. C. G. M. DOOLITTLE.

I don't know what they have done or what they will be likely to do.
Wisconsin. S. W. E. FRANCE.

I do not know of any important advantage gained. 2. Not until we clearly see some advantage ahead which the government could readily secure for us.
Ohio. N. W. E. E. HASTY.

I should suppose very little. Only one or two stations are doing any thing with bees, and two seasons are too few to secure any important results. Yes, every State should work to aid bee-keepers.
Michigan. C. A. J. COOK.

No. 2. Yes, I think it is. In Canada their societies have aid from government, and horticultural societies are helped by our State. Experiment stations are of immense value in other departments—why not in bee-keeping?
Illinois. N. C. C. MILLER.

Yes; the experiments to test whether bees will puncture sound grapes was a good move in the right direction, and ought to remove much prejudice. 2. Most certainly, get the government to do all it will for us. There is not much danger of our getting *too* much.
Wisconsin. S. W. S. I. FREEBORN.

Prof. Cook has been much more valuable to our specialty than the experimental station, but it was a good "backer." 2. Yes, if the work can be put in first-class hands. A thorough, practical, and scientific bee-keeper should have charge of such work.
Ohio. N. W. A. B. MASON.

Yes. The government analysis of honey shows us that some of the best chemists are not able to recognize pure honey. 2. If you have any surplus energy you want to work off, here is a chance. You will probably earn more than you get.
New York. C. P. H. ELWOOD.

I think not. 2. The less the government has to do with our industry, the better off we are. The more we induce, the more lies we stir up. Smart professors and clerks imagine wonderful things when bees are mentioned to them, and something funny must be said about the "busy bee." The government is doing very well by us now. Let us let well enough alone.
New York. E. RAMBLER.

I have not seen any yet; have you? 2. I think likely, if it were done in the right way, but I doubt whether it can be. The first thing the government will do will be to place it in the hands of somebody who does not know any thing about practical apiculture, and who, either through favoritism or ignorance, will place it in the hands of one just as ignorant as he is. That is all it will ever amount to, I guess.
Michigan. S. W. JAMES HEDDON.

Perhaps; as, for instance, from the report of experiments on bees vs. grapes. The position gives authority, in the minds of many people, to statements which, coming from a more careful experimenter in another position, would not have so much weight. They have also received harm from it, as, for instance, in the "sure cure" for foul brood emanating therefrom. 2. Yes, the right man might do a great deal of good.

Illinois. N. C. J. A. GREEN.

[I suppose the question has no reference to any reflection on our experiment stations that belong to the different States, for these have certainly given us some great helps; and I heartily indorse Prof. Cook's position, that every State should help its bee-keepers. I believe the Government Experiment Station will doubtless do much for all our industries.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BUYING AND SELLING HONEY; GRADING A NECESSITY.

Allow me to extend my sympathy. Your troubles in regard to buying and selling honey are the common troubles of all bee-keepers. I would suggest, as a remedy, that all honey be graded as other products are; and I think that, if A. I. Root or some other prominent bee-keeper would bring it up at the convention at Albany, something could be done. I would suggest, as a starting-point, something like the following grades:

No. 1. Extra pure white, in No. 1 sections or cartons, no candied honey, capping free from stains.

No. 2. Pure white; slightly stained cappings should be admitted to this grade.

No. 3. Slightly shaded and stained honey not good enough for No. 1.

No. 4. Dark honey, partly filled sections, and badly stained.

No. 5. Leaky sections, wormy and broken.

Extracted honey could be graded in about the same way. These grades could be printed on slips; and bee-keepers could inclose one to their customers, when shipping, and so establish a uniform grade to buy and sell by.

Saratoga, Wis., Dec. 7. THOMAS ELLIOTT.

[You are right. If honey were properly and *honestly* graded and honestly named it would do away with half the trouble in buying and selling. When a buyer receives honey of a poorer quality than he *expected*, he has some grounds for complaints. Bee-keepers are disposed to be honest; but a little self-interest (the kind that puts the best out) sometimes slips in. Carelessness in grading, or, what is worse, no grading at all, meets its reward, and a mighty poor reward it is sometimes. Those producers, as, for instance, Manum, Crane, and a good many others, who grade their honey, get a good price.]

NAMELESS BEE-DISEASE NOT CURED BY REMOVAL OF THE QUEEN.

I agree with friend Doolittle, in what he states in GLEANINGS, Dec. 1, page 855, of the nameless disease. I have removed the queen several times through the summer, and it did no good. Those that were badly affected with it last summer, 1889, showed no signs of the disease after cold weather, nor did they show any signs of it until hot weather came in earnest; then the disease broke out again in some of those that were affected last year, but not all, but started in some healthy ones, and kept with them until freezing weather came; but I have not seen any signs of it since, although the bees have been flying freely. I believe yet, that honey taken by robber bees from colonies affected by said disease will carry it home, and soon it will break out in their hive. At any rate, it has with me. I expect to try taking all the combs of honey away from the colony so affected next year, and give them empty combs, and see if that will cure it. I have tried taking away queens, and failed nearly every time.

JOSIAH EASTBURN.

Fallsington, Pa., Dec. 22, 1890.

[Friend E., this matter came up at our recent Detroit convention. Almost every one present claimed that changing the queen was a perfect cure; and Prof. Cook said he had recommended this remedy to great numbers, and had never yet heard of a failure. If the disease you have is carried from one hive to another, as you describe, I think it must be something else.]

THE THEORY AND PRACTICE OF BOTTOM VENTILATION IN HIVES.

Will my bees winter in dry cellar with permanent bottom-boards on, with top ventilation? My bottoms are all fastened, and I have a gable roof with a ¾-inch hole at each end, with a piece of burlap over the brood-nest. I have only ten swarms. Why is it necessary to have the bottom open? HIRAM B. WINSLOW.

Mahopac, N. Y., Dec. 8.

[Your bees may winter with the top open, but the tendency of the times is emphatically against top ventilation of the hive in the cellar. It should come from the bottom, either through a good-sized entrance kept cleared of dead bees, or, better, from the whole lower part of the hive, the bottom-board being removed. The reason is this: If the top is open, all the heat rises and escapes. On the other hand, if the top is closed the heat rises and is confined near the top, and the surplus, if any, "overflows" at the bottom. Bees need plenty of ventilation in the hive, but they must not have it at the expense of heat.]

THOSE REGISTER-BOARDS OF MUTH-RASMUSSEN'S, AGAIN.

In your foot-note to my article, page 850, you propose printing numbers on the date-cards, running from 1 to 100. I must strongly object to this. How many bee-keepers have exactly 100 colonies? If one buys a package of 100 numbered date cards, but has less than that number of colonies, what is he going to do with the rest of the cards? Or if his number of colonies exceeds 100, what then? No; please leave the place for the number blank, and let the purchaser himself write the number as it may be wanted. Print the cards just as the sample, only *make the date figures as large as possible*, and I am sure it will be thus most satisfactory. The cards might be (for convenience) put up in bundles of 25, like postal cards. When you get them printed, send me 200 cards, without further order. As apiaries and millinery stores are not always close neighbors, I would suggest that you, for the accommodation of your customers, obtain and keep for sale suitable black pins for these cards.

WM. MUTH-RASMUSSEN.

Independence, Cal., Dec. 9.

MRS. L. HARRISON INDORSES THE STRAWBERRY-BOOK.

I was slightly ill of late; and, casting about for something to alleviate my aches and pains, my eye fell upon your strawberry-book; presto! they were soon forgotten. How I dug, raked, and planted, and delighted in seeing them bud and blossom, and gathered the luscious fruit! It is a grand panacea for an invalid. Let him have a small strawberry-bed, and he will soon take a new lease of life. If he can not walk, roll him out in a wheel-chair and put a light tool in his hands. If he can not dig and plant, do this for him, and let him cultivate them. The blood will soon be bounding through his veins, and he will be a boy again.

Peoria, Ill., Dec. 5. Mrs. L. Harrison.

OUR HOMES.

But one thing is needful; and Mary hath chosen that good part, which shall not be taken away from her.—Luke 10:42.

Bunyan, in the Pilgrim's Progress, gives us a picture which he calls "The Man with the Muck-rake." A poor, needy old man, poorly clothed, and bent with age, stands stooping over with a poor, miserable, rickety rake, with which he continues to pull up toward him the straws and the leaves, and the dust and the rubbish; and while he is thus busily engaged, an angel of light holds above his head a celestial crown. The old man, however, is too busy with his sticks and straws to pay any attention to the celestial crown; in fact, he won't even look up toward it. He is too busy. The straws and the sticks, the dust and the rubbish, are of too much importance, in his poor feeble judgment, to take the time to cast even one glimpse toward the crown of gold. The angel even tries to make a trade with the poor old man, and offers to swap the crown of gold, "even up," for the poor, miserable, dilapidated old rake. But the man stubbornly refuses to trade. Did you ever think, my friend, what a wonderful illustration that is? I hardly need tell you that the man with the muck-rake is ourselves—you and I—and our neighbors. Bunyan, by his figure, means to remind us that there is a shining crown just above our heads, and that it is held there by an angel of light. This angel is pleading for attention. He is calling us to look up from our busy cares, and to see the golden crown. I wish I could look into the faces of the readers of Gleanings this new year, and see how they receive the picture I have tried to place before them. Some of them, I know, will say it is true; others will admit that it is a very pretty fable, but will rather conclude that it is *mostly* fable. Still others, who are dissatisfied and disgusted with the straws and leaves—yes, and perhaps with the miserable old muck-rake too—will admit the fore part of the illustration, but will deny that there is a crown—a celestial crown, for each one of us; and I am afraid that we are all, in fact, more or less lacking in faith in regard to the crown of glory that awaits us. The question is, "Is Bunyan's figure a truthful one?" Is it too extravagant? Is it real? Let us turn to God's holy word, and see what authority good old John Bunyan had for his wonderful figure. He was a student of the Bible, and his wonderful illustrations came right home from the Bible itself. In fact, he had nothing to work with except the word of God, and the inspiration of God's Holy Spirit. May that Holy Spirit be with you, friends, in my talk to you this morning, and enable me to unfold the Bible promises in this very line.

We will first turn to Proverbs, fourth chapter, where it speaks of Wisdom. We read: "She shall give to thy head an ornament of grace; a *crown of glory* shall she deliver to thee." These are the words of Solomon. He knew what it was to wear a crown. He had wisdom beyond the average of humanity, and he says that this wisdom shall give us an ornament of grace—an ornament for the head, mind you. We like to see grand men and beautiful women. It is the duty of all of us to look well before our friends. Our wives and daughters give considerable attention to ornaments, especially for the head; and they do well, providing they forget not this ornament of grace which Wisdom gives. Wisdom is used in the Bible sense as the opposite of folly. One who listens to Satan, and gives way to temptation, has forgotten wisdom. Wisdom directs us to be pure in heart; and it also directs us to seek first the kingdom of God and his righteousness, and promises that the sticks and straws, and the things that we need, shall be added; and the Bible promise goes further, and says, "A crown of glory shall she deliver unto thee."

Let us now turn to first Corinthians, 9th chapter. Paul, in exhorting us to godliness, uses the figure of the races, and says, "Know ye not that they which run in a race run all? but one receiveth the prize." You see, they had prizes in those days, as they do now. In their contests of skill and physical strength, but one received the prize. It is not so in God's service, however. There are crowns enough for all, and there is no partiality and no respecting of persons. Paul continues: "So run that ye may obtain; and every man that striveth for the mastery is temperate in all things." In those days, as well as now, they had discovered that a man must be temperate to obtain a prize in a physical contest. No drinking man can expect to excel. Now comes the point of our lesson:

"Now, they do it to obtain a *corruptible* crown; but we an *incorruptible*." Paul tells us that the crown held out to us by the angel of light is an incorruptible one, "which fadeth not away."

Let us now turn to James, first chapter. We read: "Blessed is the man that endureth temptation; for when he is tried, he shall receive a crown of life, which the Lord hath promised to them that love him." Bunyan calls it a celestial crown. In the text above it is called a crown of life. It also tells us that it is given to the one that endureth temptation; and it comes, too, when he is tried. We sometimes think it is hard to meet trials. Some of us have prayed, perhaps, that God would remove these temptations that beset us and pester us continually. Our last text, however, seems to indicate that it is a good thing to be tested and tried. In fact, we could not have a crown of life otherwise. I sometimes think that it can not be possible that others are called upon to meet temptation so continually as I am. As I look out upon the world, it seems to me that nobody ever had such terribly hard work in trying to be good as I have had. I once heard a minister of the gospel say in his sermon that Satan himself, the *prince* of the powers of darkness, could be in only one place at the same time. I was tempted to question this theology. Very likely the preacher gave it as his own opinion, in an off-hand sort of way. Why could I not accept such a doctrine? Well, it did not seem to be possible that the prince of evil should leave all mankind, and turn so much of his attention to my poor self; and then came a helping thought: If it were true, I might feel glad that the rest of humanity had a respite a good deal of the time.

I used to think that Revelation was a dry book; but of late I have learned to turn to it and get much comfort and consolation. Especially do I like that second chapter that has so many promises to him that overcometh. For instance: "He that overcometh and keepeth my works to the end, to him will I give power over the nations." And again: "To him that overcometh will I give to eat of the hidden manna, and I will give him a white stone, and in the stone a new name written which no man knoweth save him that receiveth it." Well, in that same chapter, about the middle, we read: "Be thou faithful unto death, and I will give thee a crown of life." You see this crown is promised to those who are faithful. It is not enough that we be faithful a little while; we want to be faithful unto death, and then have we the promise of a crown of life. Did our friend Bunyan put it too strongly? Let us turn to First Peter, fifth chapter: "'And when the chief Shepherd shall appear, ye shall receive a crown of glory that fadeth not away." By reading the first part of the chapter we find this wonderful promise is to those who "feed the flock of God, not by constraint, but willingly; not for filthy lucre, but of a ready mind." The promise of a crown of glory is to those who are trying to make the world better; who "rejoice not in iniquity;" who "think no evil." Further along we read, "Be sober; be vigilant; for your adversary the Devil as a roaring lion walketh about, seeking whom he may devour."

The "adversary" will most surely entrap you into wasting the precious moments in fussing with straws, leaves, and the dust of the earth, if he can do so. He will leave no stone unturned in his schemes to get you to look *down* and not *up*, if it can be done. If your face, like that of the man in the fable, looks constantly downward toward the earth, you will never see the shining crown nor hear the angel voices.

Now, my friends, during this coming new year let us see to it that we look out for him who comes "as a roaring lion." Did you ever feel yourself in a bright, cheerful mood, ready to work for the good of humanity, ready to listen for the angel voices, when all of a sudden something drove out the good spirit and pulled you down to earth? Perhaps it was some little trouble with a neighbor. May be he borrowed something and did not return it. May be he showed a greedy, overbearing, and unfeeling spirit. Away go thoughts of union meetings, good resolutions to keep bright and hopeful, and, before you know it, you are led away, down amid the rubbish once more. I know what it is, dear friends. I have wondered whether there were anybody else who felt the truth of two lines in one of good old Dr. Watts' hymns as I have felt them—

Prone to wander—Lord, I feel it;
Prone to leave the Lord I love.

At such a time it does me good to repeat mentally, "Wherefore do you spend money for that which is not bread, and your labor for that which satisfieth not?" I say to myself, "Well, how is it, old fellow? Is this thing that is just now stirring you up, and that seems to demand your immediate attention, whether any thing else is attended to or not—is *that* the 'bread' that the prophet Isaiah speaks of? and is it the kind of labor that '*satisfieth*'?" Sometimes I think for a while it is; but after a few hours have passed by, when the turbulent sea of my turbulent nature has calmed down, then I think, with oh so much remorse and regret! "No, no; it does *not* satisfy." There is only one thing in this whole wide universe that does satisfy, and that is told in our opening text. "Mary hath chosen that good part which shall not be taken away from her."

Now, to wind up my short Home talk to-day I want to turn to Paul's second letter to Timothy. The veteran saint says, when near his end, "I have fought a good fight, I have finished my course; I have kept the faith." Has any one lived since the time of Paul who could consistently take such words upon his lips? And then he adds: "Henceforth there is laid up for me a *crown of righteousness*, which the Lord the righteous judge shall give me at that day; *and not to me only, but unto all them also that love his appearing.*"

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

STARTING ONIONS IN THE GREENHOUSE.

We first commenced this in 1886. Landreth's people had an onion called the Bloomsdale Pearl, which they said was specially adapted to the South. I was so anxious to see some of them that we sowed them in the greenhouse some time in January. We had beautiful pearly-white onions long before any were seen in the markets. They sold so readily we let them all go when they were about the size of hens' eggs. Next year we planted more, and some of them got so large that we sold them by the pound for 10 cts. apiece. Finally our Experiment Station at Columbus took hold of it, and last season they tested almost all the new large foreign onions offered in the catalogues. Like myself, they decided it was a wonderful success. The point is something like this: With ground very mellow, enriched, and brought up to its highest state of fertility, it is exceedingly important that we have a full even stand of any kind of crop. Now, it is very hard to manage this where we depend on sowing the seed and thinning out. By transplanting you can have exactly as many onions as you need on the ground, and no more; and it can be done cheaper than to sow the seed. *Secondly*, where you sow the seed and weed by hand (for weeds will grow as fast or a little faster than onions), there is an immense amount of labor involved. If there were no little onions mixed in with the weeds, we could with the rake, or by horse power, destroy as many weeds in an hour as we can pull out from between the onions in a whole day, or may be several days. By the transplanting process this may be done as follows: Work the ground up nicely, and let it stand until the weeds germinate. Just before you set out your plants, rake the whole surface thoroughly, so as to kill every weed. Now plant your big onions—that is, onions that have passed the weedy stage. They may have bulbs the size of beans, and be perhaps from 3 to 5 inches high. Stretch a string over your fine mellow ground—or, better still, a clothes-line. Run a roller over the line, so it will make the cord leave its print in the soft soil. Now make holes two or three inches apart along this line, and put in your onions. For making the holes, we take a hoe that has been broken from the handle, or, rather, we take the handle part with the shank attached. We grind this shank to a sharp point, and then we have a dibble that can be used standing up. A man can make holes with it on the mark almost as fast as he can walk. A boy goes over with a basket of onions, and puts an onion in each hole.

Onions are so easy to transplant that they will grow almost any way. They should be taken up from the greenhouse or seed-bed, as we do cabbage, celery, and tomato plants. Saturate the ground with water, and dig out the onions with a fork so as to get every one of the fine fibrous roots. We have done transplanting with only *small* boys, and had every onion grow. In fact, the boys get along so fast that they have the ground all covered before I know it. You can plant these onions even quicker than you can plant sets. Of course, you want nice onion ground—soft, mellow, and rich. I do not know how many onions can be grown on an acre. Our Experiment Station suggests that, with these large varieties, you may get over 1000 bushels. Our friend "Joseph," who writes for many of the agricultural papers, has been working in the same line.

Be careful about planting *many* of the large foreign onions, for they are not suitable for keeping; and with much wet weather they may rot on your hands, or even while in the ground. Our Experiment Station gives the preference to the Spanish King, or Prize-taker, onion. These will grow as large as the onions that are imported in fancy crates.

I notice in the agricultural papers there have been several claims as to the originator of this new method of raising onions. Like most of these new (?) things, however, it often transpires they are not new at all. The *Ohio Farmer* gives an article from some one who has been for many years doing this same thing by starting onion seed in an ordinary hot-bed.

If you are going into the business you had better arrange to commence *selling* the onions as soon as you can pick out one here and there the size of a hen's egg. Peel them, cut off the roots, tie them in neat bunches, and deliver them around to the houses before they have a chance to get dry. If you get them real early you can commence by putting only half a pound in a bunch. In almost any neighborhood they will go off at a nickel a bunch—that is, if nobody is ahead of you. When they begin to go slow, give three-fourths, and then a whole pound for a nickel; and finally, if you get a nickel for a 2-lb. bunch you are not doing a very bad business, especially if you have a yield of any thing like a thousand bushels per acre. Such onions will sell almost every month in the year. The Experiment Station has tested this plan for raising ordinary onions, to be sold by the bushel or barrel in the dry state, and think it a success. You can have your rows absolutely straight, and you can have just enough onions in your row without any thinning, and you get rid entirely of *hand-weeding* I am inclined to think they are right about it. It will, however, necessitate some sort of hot-beds, cold-frames, or greenhouses; and if you are going to use the onions green, you ought to be near a town or city.

HOW TO BE SURE OF GOOD SEEDS.

When our good friend Landreth inaugurated the plan of cremation, or burning up all the seeds before the 1st of January, I thought it was going to be a wonderful advance; but I have changed my mind somewhat. There are a few sorts of seeds that had better be burned up—parsnip, salsify, and perhaps onion. All the rest are nearly if not quite as good for another year. Instead of burning up the onion, however, I would use them to raise onion-sets, or sow them thick in the greenhouse, as mentioned above. We have sowed onion seed two years old for several years, for the above purposes. I have been surprised to find that, many times, they grew just about as well as new seed. Parsnip seed you can not use in this way. Beans and corn rarely germinate as fully when two years old; but by sowing them thicker you may get a very tolerable stand. There is a difficulty, however. If they should *all* happen to grow, we should have to thin them out; and thinning out corn where it is a good deal too thick is very expensive business. In fact, I have found it to take more time than all the hoeing and cultivating. On the other hand, if only *half* the seeds grow, and we have many vacancies, that is bad. It is true, we can plant in some more; but if you do this, unless you have very careful hands to gather your ears for market they will be all the while giving customers some that is too hard or some that is not mature enough. By the way, I have practiced transplanting corn, and have sometimes thought that, for *extra early* corn, it paid very well. You can get rid of the weeds, get rid of the frosts, and get a *perfect stand*.

Now, then, I want to say something in favor of *old* seeds. Almost every season we have more or less seed that pleases better than any other we ever had before. We had the finest White Plume celery this last season that I ever saw or heard of. The seed was purchased of Livingston, of Columbus. I almost quarreled with him because he charged me so much. I even talked of sending it back. When he assured me, however, that the seed was *extra*, I consented to keep it. Well, we have now about 4 lbs. of that seed left. What do you suppose I would take for it? Why, I should hate to sell it for *twice* the regular price, and take my chances on something I had not tested. Peter Henderson said, a good many years ago, that he did not dare to offer celery seed for sale until he had first tested it *one season*, and I am beginning to agree with him exactly. Some years ago we were greatly pleased with a nice lot of White Egg turnips. I bought a bagful of the seed, and put it in our catalogue. We sold it three years. But our turnips were always bad shaped, tough, and stringy. I kept trying these on different land, thinking the soil was not suitable. Last fall, however, we sent to *Livingston* for some White Egg turnip seed, and were rejoiced to find beautiful bulbs, tender and sweet. In fact, they were sweeter than the Purple-top Globe. But right here comes in another trouble. These last were sown on that beautiful piece of ground where I turned under the Sharpless strawberries (and put on so many ashes)—the ground that gave such beautiful radishes in just thirty days. Now, I did not sow *any* of my old White Egg turnip seed on this nice ground. I became disgusted, and tried only the new. So you see we are all at sea. I do know this, however, that Livingston's seed is *good* with *nice ground*.

Under the circumstances I do not dare to use the old seed again until I have tried a row *side by side* with the new. I have been afraid that some of our large seedsmen (especially where they offer seeds at a very low price) save their seed indiscriminately from every plant that produces seed. Suppose they should save seed from a turnip that produced scarcely any bulb at all; or from radishes that just ran up to seed the first thing they did. Last season we sowed a lot of carrots very early. Well, in the fall a great lot of them ran up to seed. Our celery does this more or less every season. Suppose somebody should save seed and offer it for sale, from celery that shot right up to a seed-stalk the first thing. I do not know *positively*, but I presume such seed would not be worth much if any thing. We want to be slow, however, in drawing conclusions. I will tell you why. I once condemned some radishes because they all ran up to seed without making any bulbs at all. I called the seed-grower a *fraud*. Well, I was so much disgusted that I let them go and ripen their pods. The seed fell out and dropped on the ground, during the cool fall weather, which seemed to be just suitable, and brought forth a great quantity of most beautiful radishes. I judged it was the dry hot weather that made the radishes behave so badly in the spring, and that it was the cool fall weather that made the seed from these same radishes do so nicely afterward. Still, it will surely pay to be very careful about the seeds you sow. Let me give you an illustration.

About the first of June we received an order for 20 cents' worth of Fottler's Brunswick cabbage seed. Our friend sowed the seed, and I guess about every one grew. He put out the plants and raised a fine field of cabbages. He says, however, that the cabbages made nice hard heads of *Jersey Wakefield*. He wanted large cabbages to put away for winter. Nobody wanted these little ones in the fall, so he fed them to his cows, and they were probably worth $5.00 to him. Had they been the real Fottler's Brunswick, he would probably have received $25.00 or $30.00 for them. I think his estimate of only $5.00 on a fine crop of Jersey Wakefield cabbage, even in the fall, was very low, for we often raise them for winter cabbages, and never had any to keep better, or give better satisfaction to our customers. But,, of course, we did not get as many pounds of cabbage to the acre. Did our clerk really make a mistake and go to the wrong bag? Well, *she* thinks it next to impossible, and I do not see how it *is* possible. An ounce of seed costs just 20 cents, and the ounce packages are all put up, a lot of them at once. What is to be done? Candidly, I do not know. If I am to pay $25.00 damages to a man who bought only 20 cents' worth of seed, I think I should prefer to give up the seed business entirely. I would buy seeds to plant, of course, but I should be afraid to offer seeds for sale. I mention this little incident to illustrate why it is that most seedsmen decline to be responsible for the crop. If it were possible that a peculiar state of the soil and weather should make Fottler's Brunswick look like Jersey Wakefield, I should say this was the explanation of it. I have not had experience enough to know.

OUR LIST OF SEEDS FOR 1891.

You will remember how determined I was to cut the list down. Well, I have cut it down some. I have cut off all our long string of tomatoes but three, and some other things in proportion. But the correspondence that was brought out in regard to the subject rather discouraged me. For instance, I was going to drop Louisville Drumhead cabbage; but this brought a wail from a good friend who had been buying of us for years, who said there was nothing like it for his locality. Last season we tried dropping Early Summer, in order to get rid of so many varieties; but we had more Early Summer plants ordered than almost any other kind. The biggest and finest cabbages on our grounds were from a few Early Summer plants left over after filling orders. They looked so fine that we just put in a couple of rows, and so it has transpired with other things. We also dropped the White Egg turnip in our 1890 catalogue; but the White Egg was, during this past season, called for all over town, and was the best early turnip we ever raised. Our Experiment Stations have certainly done a very wonderful work in weeding out duplicates. Friend Green, in this issue, says that Shoepeg corn is the same thing as Ne Plus Ultra and Banana; and we had some on our grounds that was called, I think, Sugar Cream.* We compared it in looks, and put it on the table, and it was so near like Shoepeg that certainly there is no reason for cataloguing the two under different names. This makes *five* different names for one kind of sweet corn.

The Osage melon was introduced with quite a flourish, and it is really worthy of adoption; but it is now pronounced the same thing as Miller's Cream, which came with an equally great flourish, and some of the catalogues have described both without any intimation that they are even alike.

Where are we going to get our seeds the coming season? Well, this also becomes complicated and complex. It would save us a good deal in freight and express if we could buy all or nearly all of one seedsman; but we can't do it. As I get acquainted with our various seedsmen, I rejoice to see that they are, for the greater part, good, honest, faithful, hard-working men. We find excellent reasons for getting a certain line of one man and a certain line of another, and so on. There are certain seeds we greatly prefer to raise ourselves. Others come from men who, we know by past experience, raise exactly what we want. Some might happen to come from one and some from another. If you wish to intrust your orders to me, I will do the very best I can for you; but I can not, under any consideration, undertake to guarantee that the seeds we furnish will *always* give a crop.

RAISING LETTUCE IN A GREENHOUSE, AND THE LETTUCE DISEASE.

I built a small greenhouse, 11½x48 feet, last fall, to grow lettuce in, but my first crop is nearly all gone by damping off. I understood that the Grand Rapids lettuce was proof against that fault. There must be something wrong with the treatment I give them. What do you suppose is the matter? JNO. MAJOR.

Cokeville, Pa., Dec. 24.

[Friend M., for several years back there has been universal trouble in raising lettuce in greenhouses, in just the line you mention. But the Grand Rapids lettuce is so little affected in this way that it has been called rot-proof. My opinion is, that it is mainly caused by imperfect drainage, and too much dampness in the atmosphere. The trouble occurs mostly in December or January, when we have the least sunshine. Sudden drafts of chilly air also—at least at times—have something to do with it. Opening the ventilators so that frosty air may strike directly on the plants will cause them to begin to damp off, say the next day or two, or three days afterward. Taking the sash off entirely when we have a spell of warm weather seems to do the plants a great deal of good. One kind of dampening off is often caused, evidently, by having the plants too close together—say where they are crowded in the seed-bed. I have had the opinion that plenty of air, so as to dry the plants and the soil out, just as they will get dried out between showers outdoors in summer, might remedy it, and I have wondered whether warming the greenhouse by a blast of heated air might not help to get rid of dampness in the winter time. Now, if some of the veterans in growing winter lettuce will tell us more about it, I shall be glad to give them space. When I last visited Peter Henderson he said his neighbor John Hudson, who built six large greenhouses, mostly for lettuce-growing, had been obliged to give it up on account of the dampening-off and rot. He could grow radishes, without any trouble; but he could get lettuce only by making hot-beds in the old-fashioned way, in the open air, stripping off sash to give them sun and rain when the weather permitted. You can get a glimpse from the above of what I expect to do with my new-fashioned greenhouse when I get it figured out. I have already ever so many plans, but they cost too much money for the ordinary market-gardener.]

WHAT IS THE CAUSE OR ORIGIN OF A "SPORT" IN VEGETABLES?

For the last five years I planted but one kind of pumpkin. In 1889 one vine had an entirely different kind from the parent stock, and, being better, I saved seed from the best one to plant in 1890. This year I had at least six or seven distinct varieties from the seed of that one pumpkin, and only one vine from 80 or 90 had fruit like the one saved from. If I plant seed

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*Burpee's catalogue is just at hand, and he gives *still another* name to the Shoepeg; namely, Quaker Sweet. He also pronounces the much-lauded Polaris potato the same thing as the Puritan—*whew!*

from only one kind the coming season, will it be the same, or go on increasing? Was it a sport or not? I thought they produced the same as the sport. I have some of them yet, just as sound as when picked from the vines. They are a sweet pumpkin. BENJ. PASSAGE.

Stark, Mich., Dec. 25.

[Friend P., you have struck upon something of great interest to me, and perhaps to others. You can, without question, by careful selection, get a distinct variety of pumpkins from the sport you mention; but, if I am correct, a sport is always inclined, more or less, to sport still further; therefore your pumpkins will sport still further unless you by selection hold them down, as it were, to something you have decided on. I wish Prof. Cook would tell me whether I am correct.]

EDITORIAL.

Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?—ISAIAH 55:2.

REDUCED rates to the Ohio State Bee-keepers' Association (to be held at Toledo, Feb. 10 and 11), will be given on all the roads—at least 1⅓ fare, and possibly better. Dr. Mason has the matter in charge.

NEW CATALOGUES.

WHAT is the matter with the new catalogues? If you want them noticed, send them in; and if perchance we overlook it, please jog our memory.

GARDENING AND BEES.

E. L. PRATT says, in the *Apiculturist*, that there is no pursuit that can be worked with bee-keeping to such advantage as gardening under glass.

THOSE OUTSIDE WINTER CASES.

THESE seem to be doing nicely so far in our apiary. The bees seem to be in just as nice condition as those in large chaff hives. So far we feel very much encouraged as to their ultimate success.

THE SLATTED HONEY-BOARD.

THE slatted honey-board is now scarcely ordered, and we have almost ceased making them. Fixed distances and thick top-bars are running it out entirely. Of course, queen-excluding honey-boards are as popular as ever.

HOFFMAN FRAMES.

THESE are growing exceedingly popular, judging by the way orders are coming in for them. It fans E. R.'s conceit mightily to think that he helped to call attention this fall to something so manifestly good and useful in the bee-hives. Mr. Julius Hoffman is a benefactor.

SILO AND SILAGE, BY PROF. COOK.

THE third edition is now out, and more than 25,000 copies have been sold in less than two years. The book will be worth many times its cost to any of our readers who have even a small interest in this wonderful invention in agriculture. Mailed from our office for 25 cts. We will send GLEANINGS and the silo book together for $1.15.

THE NEW DRESS OF THE AMERICAN BEE JOURNAL.

THE Jan. 1st number of the "old reliable," always-on-time bee-publication is before us. While its pages have been reduced to a size slightly smaller than these, the number has been increased to 32 instead of 16 as formerly. Its general appearance and make-up, as usual, are good, and it is printed wholly from new type. With this number the *American Bee Journal* celebrates its 30th year of existence, and we wish it many more happy New Years.

A NEW BOOK BY FRIEND COWAN.

"THE Honey-Bee" is the title of a new book by Thomas William Cowan, editor of the *British Bee Journal*. It contains over 200 pages, detailing the natural history, anatomy, and physiology of the bee. Some handsome original engravings adorn the pages of the book. We have not had time to review it, but we will do so a little later, reproducing a sample of one of the enlarged engravings of the honey-bee, showing the internal organs.

PRINTING PRICE LISTS.

OUR facilities for printing apiarian price lists were never better than now. We have an enormous selection of electrotypes from which to choose; and having put in another new press, we are enabled to do work cheaper and more expeditiously than ever before. A catalogue is now before us which was evidently printed at some local printing-office. A cut of the one-piece section is upside down, and the size of the sections is given at 4½x4¼. We find other errors that would have been corrected by any one who knows any thing about bees.

PAINTED MUSLIN VS. PAINTED TIN FOR COVERS TO HIVES.

SOME one has said, we do not know where, that painted muslin answers excellently in place of tin for covers to hives. Muslin or common cloth is stretched over the board cover, and nailed around the edges. It is then given two or three good coats of paint. Of course, it can not be quite as durable as tin; but if it can be made to answer for several years, we could afford to re-cover the hives. Who has had lots of experience in this matter? If outside winter cases can be covered with painted cloth instead of tin it will make them cheaper still.

QUEEN-EXCLUDERS, AND WHEN TO USE AND WHEN NOT TO USE THEM.

OUR best bee-keepers seem to think that perforated zinc queen-excluders are not a necessity in the production of *comb* honey. The instances in which queens enter the supers are so rare that it is not worth the expense and time in putting them on the hives. For *extracted* honey, excluders are fast being regarded a necessity. Queens are much more apt to enter extracting-combs than the sections. The reason is, because the former are more nearly of a natural thickness; and in the latter, the cells are so deep that the queen is quite discouraged.

THE AMATEUR PHOTOGRAPHER'S HANDBOOK.

We have had a call at various times for a good book on amateur photography; but heretofore we have not been able to furnish something that was up with the times, simple in style, and reliable in instruction. Most of the books are too complex, and suited only for the professionals. Recently our attention has been called to the Amateur Photographer's Handbook, by that very fascinating author, Arthur Hope. It is easy to see that he has been through all the "experiences." His style is so captivating, and so simple and plain, that almost any boy will be enabled to turn out good work. In fact, if he is inclined to run into hobbies he will be carried clear away with the book, and with the subject with which it deals

The work is so excellent that we have decided to place it on our book-list, and can furnish it postpaid by mail, in paper cover, for 75 cts.

THE CAPPINGS DEPARTMENT

Of the *Canadian Bee Journal* is interesting and well edited. It gives the best thoughts of bee-keepers, no matter where uttered, with substantial credit, not only of the writer, but of the bee-journal as well.

YELLOW CARNIOLANS.

A GOOD deal is said in the *Apiculturist* about yellow Carniolans. If they resemble the Italians at all, how are we to distinguish them from the bees from sunny Italy? The typical Carniolans we have tested seem different from Italians only in color. Make the color the same, and we could not tell which from t'other. Who will be the lucky man to introduce yellow *black* bees?

A VISIT FROM A VERMONT BEE-KEEPER.

OUR friend and correspondent, J. H. Larrabee, of Larrabee's Point, Vt., and secretary of the Vermont Bee-keepers' Association, made us a pleasant call last week. He is one of the parties who helped to get up the bee-keepers' camp on Lake George last summer. He is a wide-awake and progressive bee-keeper; and the name "Genial John," as given him by Rambler, seems to fit him well. Perhaps we shall hear more of him later.

THE BRITISH BEE JOURNAL TO SUBSCRIBERS TO GLEANINGS.

UNTIL further notice we will furnish the *British Bee Journal*, published weekly, at the same price as GLEANINGS—$1.00 a year. The regular price of the *British Bee Journal* is $1.50. We are enabled to do this by exchanging a certain number of GLEANINGS for the same number of the *B. B. J.* After the number to be exchanged is taken up, the price will be as heretofore—$2.40 for both.

THE NEW YORK STATE BEE-KEEPERS' ASSOCIATION.

THIS meets Jan. 22, 23, and 24. The character of the discussions and essays, together with the prominent bee-keepers whose names are attached, bespeak a splendid meeting. This three days' session, together with its prominent bee-keepers, will make this convention rank in importance next to one of the N. A. B. K. A. See published program elsewhere. Ernest or A. I. R. expects to be present.

QUEEN-EXCLUDING HONEY-BOARDS MADE OF WOOD.

THESE have been made before with the slots *parallel* to the grain, but they were discarded because of the shrinkage of the wood and consequent moisture of the hive. But the G. B. Lewis Co. are now making them with the slots to go *across* the grain, and they predict their success. By the way, this firm has lately made a dovetailed hive out of ⅝ lumber, and they sell it at a very moderate price. The testimony of all apiarists has been against any thing less than ⅞ inch for the walls of the hive; but here will be a chance for somebody to test the matter.

TWO NEW BEE-JOURNALS.

TWO more new bee-journals were issued Jan. 1, this year. The first that comes to our table is the *American Bee-Keeper*, edited and published by the W. T. Falconer Co., Jamestown, N. Y. It is nicely printed, 16 pages, with a neat and attractive tinted cover. Such bee-keepers as Dr. Miller, Dr. Tinker, Mrs. Harrison, E. L. Pratt, Mr. Holtermann, and others, have written for it. The other journal is the *Bee World*, edited and published by our old friend and correspondent, W. S. Vandruff, Waynesburg, Pa. The latter is a 16-page monthly. Price 50 cts. per year. It starts out well. Success to the new publications, is the wish of GLEANINGS.

THE PROJECT TO MOVE A WHOLE APIARY IN WINTER TO COLORADO.

OUR friend O. R. Coe, still at Windham, N. Y., who, it will be remembered, was proposing to go to some alfalfa fields with his apiary, has settled upon his location, which is Fort Collins, Col. He has ascertained that it is in the midst of the Rocky Mountain bee-plant and alfalfa bloom, and proposes to get his bees into the field early, and be ready for the honey-flow. He is going to move a carload of bees to his new location this winter. In a letter just received he expresses a fear that he may not be able to move the bees as soon as he desires, on account of the almost impassable condition of the roads to the railway station, by reason of the great depth of snow, and the consequent drifts. He writes, under date of Dec. 27:

> Never, since I can remember, have we been so completely blocked in by snow early in the winter, as now. Our roads, many of them, are utterly impassable from drifts—as much so as they were in the great blizzard of three years ago next March.

BALL'S ALFALFA AND SORE THROAT.

A MEMBER of the Root family was suddenly taken in the night with a distressing sore throat, followed by coughing, and difficult and painful breathing. Trask's ointment and gargling of salt water had no effect. Now, there happened to be in the house about half a tumblerful of Ball's alfalfa. This honey was liquid, and of beautiful body and color. Without much faith, this was given to the patient. Almost instantly came relief. That rich and beautiful honey acted like a soothing oil upon a throat raw with coughing. After a little the distressing symptoms returned, and again the honey was administered, with like results, and so we kept up the program until it was gone. Then we trapsed around the house until we found a bottle of white clover. We tried this, but it had no effect. We next gave the patient the scrapings of the alfalfa jar, and, like oil to a hot box, it went to the spot. Temporary though it was, it relieved a great deal of suffering and no little "scare." It seemed to cut the mucus, and protect the raw sores in the throat.

[The above from Ernest sounds pretty strong for alfalfa honey; and although I confess I do not understand why alfalfa honey should have any particular virtues over other clover honey, the facts in the case given seem to decide that there must be a difference somewhere. If this be true, then may it not reasonably be presumed that honey from other plants may have special virtues for particular ailments.]

STATISTICS.

THE other day a correspondent, having in view the preparation of an essay to be read at a farmers's institute, desired us to furnish him with statistics as to the number of colonies in the United States, the number of pounds of honey and wax produced, etc. There have been no reliable statistics made, although some pretty good guesses have been given. It was estimated, two or three years ago, that there were 300,000 bee-keepers in the land, and that the number of colonies, if each owned not less than ten, would be 3,000,000. Allowing 10 lbs. per colony, the annual product would be 30,000,000 lbs. But the probabilities are, at this date, that the number of bee-keepers has increased to 500,000, and that the annual product of their hives has increased at least in proportion. The government statistics as touching honey which we have had so far would be too unreliable to quote.

DISCARDING OLD THINGS AND TAKING UP NEW ONES.

FOR a good many years GLEANINGS has been slow in adopting improvements in bee culture. One reason of this is, that, more than a dozen years ago, there was quite a protest against introducing so many new fixtures. The protest was just, and I confess I feel now a good deal of anxiety when so many new things are coming up, being illustrated and offered for sale; and I do believe that we should always be slow in bringing to our apiaries different arrangements. It is well to present these things and discuss them; but before adopting them I would let our Question-box corps give their opinions. If a change is to be made, let us have the reasons in full for demanding the change. Let us take the Hoffman frame as an example. It is by no means a new thing, but its revival is new. While I feel somewhat doubtful as to whether it is going to obtain a permanent place in our hives, there are two reasons just now for its adoption. Out-apiaries are taking a place in our industry that they never did before; and there is also a strong demand for something to do away with the burr-comb nuisance. If the bees *will* build combs, have them build them where they are worth money instead of where they are a nuisance. To do this we want fixed distances; and if we want fixed distances, perhaps nothing better presents itself than the Hoffman frame. Please remember, friends, that A. I. Root, while he lives, is going to protest and hold back against the introduction of any thing new until there is some very good and plain reason for burdening the brotherhood with new and additional expenses.

THE NATIONAL BEE-KEEPERS' UNION.

THE 6th annual report of the General Manager, Mr. Thomas G. Newman, Chicago, Ill., is before us. Mr. Newman says:

"When attorneys are defending cases in courts, they often cite the suits previously decided, which favor their argument, or are analogous to it. * * * * When bee-keepers are their clients, they should be able to point to decisions or points of law in favor of the pursuit. * * * * In the first case defended by the Union, Judge Clementson remarked: 'This case involves new points of law upon which there are no rulings of the Supreme Court. We have no law upon which to instruct a jury.' That was in the Freeborn case, in Wisconsin, which the Union had defended so vigorously that the complainant lost his grip in the first round, and it was literally kicked out of court. We have now secured several decisions, notably the one in the Supreme Court of Arkansas. These not only save trouble and annoyance to bee-keepers, but also expense to the Union, by the prevention of petty lawsuits.

"Now, if city councils or town boards are anywhere troubled by a complainant, and asked to pass an ordinance declaring bee-keeping a nuisance, and to prohibit it within the corporate limits, etc., every member, together with the mayor, the city attorney, and the one making the complaint, are all dosed with copies of the Supreme Court decision, that 'bee-keeping is not a nuisance' *per se*, and the matter is at once dropped—killed by the decision of the Supreme Court of Arkansas!"

In the one point of establishing precedents, the Union has performed a grand work; and even should it now be disbanded, these precedents will go on, having their influence just the same; but there is no likelihood of the Union being disbanded so long as T. G. Newman remains back of it; and under his efficient management we have no doubt that it will continue its good work. It has two more cases on hand, and the General Manager is in hopes that they will be landed in the Supreme Court of their respective States on account of the valuable decisions that will be, without question, rendered in favor of the bees. The Union has a balance on hand in the treasury of $621.18. It has engaged attorneys for the defense of the several cases above mentioned; but Mr. Newman says we shall have use for all the money on hand, and the dues for the next year, as the cases are reached on the docket. To become a member, send $1.00 to the General Manager, as above.

OLD SQUARE CANS FOR CALIFORNIA HONEY; HOW CALIFORNIANS ARE BREAKING DOWN THEIR MARKET.

IT is a well-known fact, that square cans are used almost exclusively for shipping kerosene from the East to the Pacific coast. After being emptied they are filled with other liquids, and shipped back again. The worst part of it is, they are being used largely for extracted honey. It is true, they are scalded out, and then the first quality of extracted honey is put in and sent by the carload to the East. Some cans that our men have examined leave us in doubt as to whether they were ever scalded. Sometimes the flavor of the honey is seriously deteriorated, and at other times it is scarcely perceptible. Our friend and correspondent, J. F. McIntyre, a Californian, it will be remembered, has written against the use of oil-cans for packages for honey.

The great difficulty in the way is, that the California markets, at present, will not pay the difference between honey put up in new square cans, and that put up in those formerly used for kerosene. And still another thing is, that these oil-cans can be had for 50 cts. per case less than the new ones; and some of our Western bee-keepers, looking to immediate gains, buy the cheaper packages. If they will reflect a moment, they will see that, in time, they will ruin the Eastern markets for all California honey, or, at least, make it so it will drop a cent or two—a thing that California bee-keepers can not afford to have happen.

Now, if you Californians *must* use coal-oil cans, use some alkali to cut the residue of grease that clings to the inside of the cans. Hot water will not remove it; but a very little weak ammonia will. Yesterday we cut the top off from one of those oil-cans in which had been shipped us some first quality of honey. We were suspicious of the flavor, and hence decided to investigate. The top being removed, we found that a thin deposit of black grease clung to all the six sides of the can. Hot water would not budge it. I then told one of the boys to get one of our 20-cent bottles, holding nearly a quart of ammonia. It is rather weaker than the ordinary commercial article, and is used for washing purposes. Two taplespoonfuls of this were thrown into the topless can. After shaking it around for a minute, the black grease came off entirely, and the sides of the can were as bright and clean as a dollar. I am not sure but that a single tablespoonful of commercial ammonia, mixed with about half a cup of water, would do the same. Remove the cap, pour in the liquid, screw the cap down, and then give the can a good shaking. If this does not remove a lot of black, greasy, inky-looking substance, then it will not do as it has done for us here at the Home of the Honey-bees. I should like to have some of our friends in California try this, and then scald out with hot water, and let the cans stand upside down to drain.

It may be argued, that, on a carload of cans, it would make the ammonia rather expensive. A day's time, and about a dollar's worth of ammonia, according to our markets, in its original form, will make enough to renovate a whole carload of cans. This expense is small in comparison with the ultimate reduction of a cent a pound on California extracted honey. Unless old cans are renovated by an alkali, like ammonia, or new cans are used, the bee-keepers of California will be doing themselves irreparable damage. E. R.

SUCCESS IN MAILING A QUEEN TO AUSTRALIA; THE BENTON MAILING-CAGE AND GOOD CANDY PUT TO A SEVERE TEST.

ABOUT a year ago, one of our customers, Mr. Æneas Walker, of Queensland, Aus., sent us an order for two tested queens. We put them up in the regular Benton cage, and provisioned them the best we knew how, but with very little hopes, however, of even the cages ever getting through to their destination, to say nothing about the queens arriving alive in the event they did. There are some restrictions in the Australian mails, and we feared the magnates over there would hold them when they got into their jurisdiction. The cages went through all right, however, but the queens were dead. Our customer, Mr. Walker, wrote to us that the bees had, by their general looks, died within only a day or two — starved to death—their food having been entirely used up. We regarded this at the time as a success, in so far that we delivered two queens in ordinary Benton cages, clear into the country of Australia, alive, and that, if we had just put in a little more candy to have lasted them two or three days more, we could have reported entire success. On the 10th of last October we replaced the two queens, sending them this time in larger Benton cages. One was a tested honey queen, and the other an untested. You will see by the letter below that the tested honey queen arrived in safety, after a journey of 37 days. The untested, for some unaccountable reason, with her attendants, died. Mr. Walker writes:

> *My Dear Mr. Root:*—I am very much pleased indeed to be able to report that the tested honey queen and her attendants arrived here in safety on the 15th inst., having thus had a journey of 37 days. They had consumed only about half of their candy, so that either the number of bees sent with the queen must have been considerably less than in the first instance, or the weather must have been cooler; but any way, it is now satisfactorily demonstrated that queens can be sent safely by mail from America to Australia. The untested queen and her accompanying bees, I regret to say, were dead; and they must have died early in the journey, as less than a quarter of their candy had been eaten.
>
> ÆNEAS WALKER.
>
> Queensland, Redland Bay, Nov. 24.

Both queens were put into the same kind of cages, and the candy was made from the same batch. It is one of those things that we can not explain, why, under precisely the same conditions, one lot of bees should die, and that the other should live. It is very possible (a fact which our correspondent may have failed to observe) that a single bee might have stuck to the candy, directly in front of the opening, and thus prevented the others from obtaining the food. The journey through the mails may in time have dislodged the bee from the candy, and, of course, all apparently died from some unknown cause. This has, in fact, happened several times, as the returned cages showed. The more I think of it, the more I am inclined to believe that this must have been the cause of death; for certainly an untested queen is supposed to stand more in the mails than an older tested one.

Mr. Walker has ordered four more queens, all to be sent in Benton cages. The size of cage to which we are limited in the mails is 5x2x1½ inches, and it is to be covered with a wire screen, protected by a movable wire lid. The Benton cage which we sent conformed exactly to that size. The number of bees which we put in each cage was 35. It is well known that the Benton cage proper has three holes. In the center one we put a thin wooden partition. We filled one of the end holes and half of the center partition with candy, the bees occupying the rest of the space.

I am explicit in all these details, in order that all queen-breeders may accomplish the same thing if they desire, or, at least, attempt it. By way of a feat, I hope that some of our extensive queen-breeders will try the same experiment. They can afford to throw away at least one queen to see what they can do, and Mr. Walker certainly will not complain if he receives a nice Italian queen-bee from America, in good order, especially if no charge is made.

The Benton cage is capable of wonderful results; and if others are equally successful, or more so, it will be a great boon to Australians, and to bee-keepers living in other remote parts of the world from us.

I omitted to say, that we are obliged to put on letter postage—that is, 12 cents per half-ounce, or fraction thereof. This will make the postage on a package such as we sent, $1.04 per queen. Queen-bees in the size of packages indicated above are not admitted to all countries; but the Postal Guide says that we can send them to the Argentine Republic, Belgium, Bulgaria, Chili, Columbia, Congo, Dutch West Indies (Curacoa, etc.), Egypt, Guatemala, Hayti, the Hawaiian Kingdom (Sandwich Islands), British India, Italy, Liberia, Mexico, Paraguay, Portugal and the Portuguese Colonies, Roumania, Siam, Spain, and Switzerland, as "samples of merchandise;" and to Austria, Hungary, France, Germany, Greece, Luxemburg, the Netherlands and Netherlands Guiana, and Sweden, provided postage is fully prepaid thereon at the letter rate; viz., 5 cents per half-ounce or a fraction thereof.

You will observe that Australia and her provinces are not included; but I think there will be no trouble when full letter postage is put on.

Later.—Since the above was written, a letter comes to hand, from Mr. John Sench, under date of Dec. 18, acknowledging the safe arrival of two queens at Port Morant, Jamaica, West Indies. Nov. 25, last year, we sent two select tested queens, put up in Benton cages, the same size as above given, and put on letter postage; namely, 5 cts. per half-ounce in this case. Our customer does not say just *when* the queens arrived; but presuming that he wrote immediately, or soon after their receipt, the bees must have been nearly a month on the way. We have tried sending queens several times before in *Peet* cages, with Good candy, but there was a failure in every instance. We must attribute the secret of this success to the Benton cage, for the candy, namely, powdered sugar and honey, mixed to a stiff dough was used in the Peet cages before. Perhaps I should add, that the queens were first sent to a forwarding house in New York, and from there they were sent direct to the address as above. E. R.

IMPROVED EXCELSIOR INCUBATOR

Simple, Perfect and Self-Regulating. Hundreds in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Send 6c. for Illus. Catalogue.

Circulars Free. **GEO. H. STAHL, Quincy, Ill.**

☞In responding to this advertisement mention GLEANINGS.

IMPORTED QUEENS.

In May and June, each............................$2.00
In July and August, each........................ 1.80
In September and October, each........... ...... 1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

CHAS. BIANCONCINI,
1-11d **Bologna, Italy.**

☞In responding to this advertisement mention GLEANINGS.

1891. 12th Year.

HEADQUARTERS IN THE SOUTH

For the manufacture and sale of

BEE-HIVES AND BEE-KEEPERS' SUPPLIES,

Early Nuclei, and Italian Queens.

Send for Price List.

P. L. VIALLON,
1tfd **Bayou Goula, La.**

☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ∵ SEND ∵ LONG ∵ DISTANCES?

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.
ESTABLISHED IN 1884. 7tfd

Please mention this paper.

HIVES AND FRAMES.

8-frame hive, with two supers, 90c; 10, $8.00. Thick-top brood-frames, with top-bar split to receive fdn. guide, per 100, 90c; other styles, $1.00 per 100. No. 1 sections, $3.00 per M. Parker fdn-fasteners, 20c, this month only. Circular free. 19-17d

SPECIAL RATES TO DEALERS.

Write us. **W. D. SOPER & CO.,**
118-120 Washington St. E., **Jackson, Mich.**

Please mention this paper.

1891. EARLY ITALIAN QUEENS from bees bred for business. Try my strain of 7 yrs. breeding. The extra honey stored will more than pay her cost. Each $1.00: six, $4.50. Ready in May. If you prefer, order now and pay when queens arrive.

W. H. LAWS,
2tfdb Lavaca, Sebastian Co., Ark.

☞In responding to this advertisement mention GLEANINGS.

STORE AND APIARY FOR SALE.

Store finely situated for doing good business. First-class apiary of 150 colonies of choice Italians. Every thing necessary for getting the best results in extracted honey—bees in self-spacing hanging frame hives. Also two Bee-Wagons, Honey-Extractors, Wax-Extractors, Honey-Kegs, one Given Foundation-Press with two sets of dies, one large Store-House near bee-yard. Two good boats, with interest in boat-house on lake. For particulars apply to

C. G. FERRIS, Miller's Mills, N. Y.
2tfdb Please mention this paper.

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

☞In responding to this advertisement mention GLEANINGS.

1891. NEW BEE-HIVE FACTORY. 1891.

Root's Dovetailed Hive a specialty. Price List free. Save your freight, and order early of

1tfdb **GEO. W. COOK,**
Spring Hill, Johnson Co., Kan.

☞In responding to this advertisement mention GLEANINGS.

THE BEE WORLD.

The **Bee World** is published monthly at 50c per year. It is **devoted** to collecting the **latest NEWS,** inventions, and discoveries throughout the bee-keeping world. If you want to keep **posted,** you cannot afford to **do** without it. **Subscribe now**. Sample copies free.

27d Address W. S. VANDRUFF, Waynesburg, Pa.

☞In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee - Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

☞In responding to this advertisement mention GLEANINGS.

Barnes' Foot-Power Machinery.

Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

23tfd

VANDERVORT

COMB FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd JNO. VANDERVORT Laceyville, Pa.

☞In responding to this advertisement mention GLEANINGS.

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HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—The demand for honey, both comb and extracted, has been ruling dull, and supply has accumulated somewhat. But during the past week a better trade has been enjoyed. Can quote market fairly easy. For 1-lb. sections, best, 18@19c; good, 16@18; common, 10@12. Extracted, in barrels, kegs, and cans, white, 8½@9½; amber, 6½@8. *Beeswax*, 25@28.
A. V. BISHOP,
Jan. 17. 142 W. Water St., Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is a fair demand for comb honey at 16@18c a lb. in the jobbing way for choice white. Demand is good for extracted honey at 6@8c a lb. on arrival. There is a good supply of all but Southern honey, which is scarce. *Beeswax.*—Demand is good for beeswax at 24@26c a lb. for good to choice yellow on arrival.
Jan. 16. CHAS. F. MUTH & SON, Cincinnati, O.

NEW YORK.—*Honey.*—Market quiet and unchanged. We quote extracted light Fla. at from 8@8½ cts. per lb., and California from 7@7½c per lb. *Beeswax* from 27@29 cts. per lb.
F. G. STROHMEYER & CO.,
Jan. 20. New York City.

ALBANY.—*Honey.*—We have received up to date 2150 cases of comb and 234 packages of extracted honey. As we expected, there is an increased demand for dark extracted honey, and we are nearly out of stock. Comb honey is moving off slowly with no change in prices. White, 16@18c; mixed, 14@15c; buckwheat, 11@13c. Extracted light, 9@10; dark, 7@8.
CHAS. MCCULLOCH & CO.,
Jan. 21. 339 Broadway, Albany, N. Y.

ST. LOUIS.—*Honey.*—We quote to-day's honey-market: Choice white-clover comb, 1-lb. sections, 18c; good, 17c; fair, 15@16; broken comb, 10@12. Extracted, white clover, in cans, 9@10c; dark, 7@8c; Southern, in barrels, 5½@6½. *Beeswax.*—Selected, 25½@26; prime, 25@25½; dark and burned, less.
Jan. 10. W. B. WESTCOTT & CO., St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey firm 5¾@6½. Comb honey scarce; 2-lb., 12@14c; 1-lb., 14@16. *Beeswax* in demand at 24@24½c.
SCHACHT, LEMCKE & STEINER,
Jan. 12. San Francisco, Cal.

DETROIT.—*Honey.*—Comb honey is selling slowly at 15@16c; white clover and basswood scarce. Extracted, 7@8c. *Beeswax*, 27@28c.
Bell Branch, Mich., Jan. 19. M. H. HUNT.

ALBANY.—*Honey.*—The stock of honey here never was so light as now so early in the season, and now is the time to sell. Light comb, 15@18c; dark, 12@14c. Light extracted, 9@10c; dark, t@8c.
Jan. 15. H. R. WRIGHT, Albany, N. Y.

ST. LOUIS.—*Honey.*—Market unchanged. Demand quiet for comb. Extracted in good inquiry at 6@7c in barrels. *Beeswax*, prime, 25c.
Jan. 19. D. G. TUTT GRO. CO.,
St. Louis, Mo.

COLUMBUS.—*Honey.*—White clover in demand at 19@20c. Extracted honey very dull.
Jan. 19. EARLE CLICKENGER, Columbus, O.

FOR SALE.—4 60-lb. cans white-clover and basswood extracted honey, on cars at Morrison, Mo., at $6 per can.
MILLER BROTHERS,
3-4-5-6-d Bluffton, Montgomery Co., Mo.

FOR SALE.—50 cans of light extracted honey, at 8½ cts. per lb. Entire lot at $5.00 per can.
S. A. SHUCK, Liverpool, Ill.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb E. J. BAXTER, Nauvoo, Ill.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-tfdb. Mt. Vernon, Ia.

CONVENTION NOTICES.

The Northeastern Michigan Bee-keepers' Association will hold its annual meeting on Wednesday, Feb. 4, at the Commercial House, Port Huron.
W. Z. HUTCHINSON, Sec'y.

The 8th semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at Montrose, Pa., Thursday, May 7, 1891.
H. M. SEELEY, Sec'y.
Harford, Pa.

The Eastern Iowa Bee keepers' Association will meet Feb. 11 and 12, 1891, in Maquoketa, Iowa, at the Dobson Town-clock Building, to commence punctually at 10 A.M. There will be a large turn-out of the prominent bee-keepers of the State. There will be a question-box, free to all, in which any question that you wish discussed can be presented and answered. Let all be on hand, and bring in your report for 1890, spring count, or from May 1. The people of Maquoketa kindly furnish us a free hall.
FRANK COVERDALE, Sec.

The following is the program of the proceedings of the annual convention of the Ohio State Bee-keepers' Association, to be held at the Merchants' Hotel, Toledo, Feb. 10, 11.

FIRST DAY, TUESDAY, FEB. 10.

Convention called to order by the President. Reading minutes of previous meeting. Receiving members, and payment of annual dues—50 cents.

How can this convention be made interesting and profitable?—Volunteers. Recess.

The relation of honey-eating to longevity.—E. E. Hasty.

Appointment of committees.

AFTERNOON.

Address of the President, Dr. A. B. Mason.

Bee-laws.—Dr. C. C. Miller, Marengo, Ill. Recess.

Getting used to a thing.—E. R. Root, Medina, O.

Question box.

EVENING.

The principal cause of the failure of the honey-crop in my neighborhood.—C. F. Muth, Cincinnati. Recess.

How can honey-producers best reach the trade? or, Do we need a Union trade-mark?—Miss Dema Bennett, Bedford, O.

Question-box.

WEDNESDAY MORNING.

Queen-rearing.—Dr. G. L. Tinker, New Philadelphia, O.

Spacing of frames, and its relation to brood-rearing and swarming.—J. B. Hains, Bedford. Recess.

Reports of committees. Deciding place of next meeting. Election of Officers.

Freight classification for bee-keepers.—J. T. Calvert, Medina.

Advantages of foundation.—W. Z. Hutchinson, Flint, Mich.

AFTERNOON.

Moving bees to catch the honey-flow.—H. R. Boardman, East Townsend, O.

Perforated zinc in extracting.—Volunteers.

Unfinished business. Recess. Question-box.

Bedford, O. MISS DEMA BENNETT, Sec'y.

The Southwestern Wisconsin Bee-keepers' Association will hold its next convention in the Court-house, at Lancaster, Grant Co., Wis., March 25 and 26, 1891. All who are interested in apiculture, and conventional work on the same, are cordially invited to attend. The following are the topics for essays.

1. Spring dwindling and cure—Edwin Pike, Boscobel.
2. Enemies, and how to avoid—N. E. France, Platteville.
3. Foul brood and cure—N. E. France.
4. What are the most destructive birds that kill bees—Edwin Pike, Boscobel.
5. Queens, introducing and raising—A. E. Coolie, Mt. Hope.
6. What is the best way to ventilate a cellar for bees to winter in?—H. Evins, Wauzeka.
7. How shall our membership manage to sell our honey crop to the best advantage?—Edwin Pike.
8. Does it injure a queen to be clipped?—M. M. Rice, Marion.
9. Which will produce more honey—a colony allowed to swarm, counting in the work of the swarm, or one kept from swarming?—Delos Ricks, Boscobel.
10. Which is the most profitable way for increase—by artificial swarming or by natural swarming?—M. M. Rice.
11. Robbing, cause and cure—H. Gilmore, Georgetown.
12. Is it profitable for a farmer to keep bees?—E. S. Morse, Fennimore.
13. Location of apiary and stands, tools, etc.—B. E. Rice.
14. Other occupations for bee-keepers, that pay well to combine with apiculture—Mr. Prideaux, Bloomington.

E. PIKE, Pres. B. E. RICE, Sec'y.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of bees, hives, and apiarian supplies in general, from the following parties:

J. B. LaMontagne, Winter Park, Fla.
S. F. & I. Trego, Swedona, Ill.
Gregory Brothers, Ottumwa, Ia.
M. Richardson & Son, Port Colborne, Ont.
W. D. Soper & Co., Jackson, Mich.
Geo. E. Hilton, Fremont, Newaygo Co., Mich.

The following are from our press:

Colwick & Colwick, Norse, Texas.
Walter S. Pouder, Indianapolis, Ind.
W. H. Laws, Lavaca, Texas.
John Nebel & Son, High Hill, Mo.

SPECIAL NOTICES.

We will pay 25c each for a limited number of copies of GLEANINGS for Feb. 1, 1882.

OUR EARLY PURITAN POTATOES.

By an error in our seed list, published in our last issue, the above potato was advertised at last year's prices; whereas the price in italics at the bottom of the list should refer to Early Puritans as well as to all the others. Potatoes are worth more than $1.50 in Medina, at present, for table use.

PANSY SEED FOR SUBSCRIBERS.

We have a new supply of papers of mixed pansy seeds such as we had last season. Any one who sends a dollar for GLEANINGS can have a packet free, providing he mentions it at the time, and his name is not entered for any other premium; otherwise the price will be 10c per packet. These packets of pansy seeds are usually sold for 25c. By the way, I should be glad to get a report from those who sowed the seed last season.

THICKNESS OF TOP-BAR IN OUR FRAMES.

A great many of our patrons seem to have the impression that our so-called thick-top frames are the only ones having thick top-bars. These have top-bars ⅞ in. thick; but where frames are accurately spaced, as in the case of the Hoffman, closed-end, or Van Deusen frames, top-bars ⅝ thick are just as much a preventive of burr-combs, and are abundantly heavy for strength. The added ¼ inch to the top-bar of the thick-top frame is necessary only where frames are not well spaced, as they are not likely to be without some kind of self-spacer. Remember, then, that all our frames have thick and wide top-bars, except the old-style all-wood frame and metal-cornered frame, which have top-bars ⅜x⅞.

Leahy M'f'g Co.,

Undoubtedly the Largest Plant in the West,

Built exclusively for the manufacture of Apiarian Supplies. **One and One-Half Acres Floor Space.** We sell as **Cheap as the Cheapest**, and our goods are as **Good as the Best**. Parties will do well to **write us** for estimates on large orders. We will send you our catalogue for **your name on a postal card.** Address **LEAHY MFG. CO.,**
Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

NOW, FRIENDS, LOOK HERE!

I sell the Nonpareil Bee-Hive, White Poplar Sections, Italian Bees and Queens. Price List free. Write for one. 8tfdb

A. A. BYARD, West Chesterfield, N. H.

☞In responding to this advertisement mention GLEANINGS.

Comb-Foundation Mills.

Made by **W. C. PELHAM,**
1-5db **Maysville, Ky.**

☞In responding to this advertisement mention GLEANINGS.

IF YOU WANT BEES

That will just "**roll**" in the honey, try Moore's Strain of Italians, the result of twelve years' careful breeding. I am now booking orders for the coming season. Send for circulars for 1891, and see what my customers have to say. 3d

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞In responding to this advertisement mention GLEANINGS.

LOOK HERE! Do you want a grocery with good business, in good location?
3tfdb **BOX 40, German, Darke Co., O.**

Wants or Exchange Department.

WANTED.—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free.
2-7db C. W. DAYTON, Clinton, Wis.

WANTED.—To exchange fruit-trees, for a 10-inch foundation-mill.
JAMES HALLENBECK, Altamont, Albany Co., N. Y.

WANTED.—To exchange Acme harrow, swell-body cutter, and Planet Jr. horse hoe and cultivator, for Barnes saw, bees, honey, or offers.
2-tfdb MODEL STAMP-WORKS, Shenandoah, Ia.

WANTED.—To exchange Excelsior hand-inking press, 25 fonts type, material, etc., also 5 vols. American Encyclopædia, for honey (crop 1891). A rare chance for smart boy to make money. Write for particulars. S. S. LAWING,
2-3d Henderson, Webster Co., Mo.

WANTED.—An active Christian who understands the management of bees, etc., to take one-third less or more, interest. Location better than—well, I will not say; write any way. P. O. LOCK B. N,
2-tfdb Williamson, N.Y.

WANTED.—To exchange, 1 saw, with counter-shaft and belt. Will exchange for wax.
2-3d L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange hand-made crayon Portraits, 18x22 size, for 100 lbs. good honey. Satisfaction guaranteed. Send your photo. to 2-3-4d
J. M. WELLS, 1552 Monsey Ave., Scranton, Pa.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange tested or untested Italian queens for sections or 6-inch Root foundation mill. J. W. TAYLOR,
3-4d Ozan, Hempstead Co., Ark.

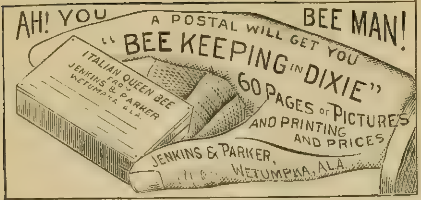
WANTED.—To exchange strawberry-plants, the leading varieties, for poultry.
3-4d DOUGLASS BROS., Hamburg, Mich.

WANTED.—Situation with a bee-keeper, fruit-grower, or market-gardener.
3d R. H. BRICKER, Slate Lick, Pa.

WANTED.—Situation, by a single man, with some one in the South, to work in apiary; willing to do other work. Can give reference. Address
3d A. J. HUSKEY, Marystown, Johnson Co., Tex.

WANTED.—To exchange Black Cochin chicks for first-class magic lantern. They are No. 1 birds, and the best of winter layers; and should like to exchange bees for Golden Wyandott chicks. I would keep bees until spring. Good reference given.
3tfdb D. F. LASHIER, Hooper, Broome Co., N. Y.

SEND 10c and the names and addresses of 10 bee-keepers and we will send you a monthly paper, "Buckeye Farmer" for one year.
3-4d BUCKEYE BEE SUPPLY CO.,
New Carlisle, Ohio.


AH! YOU BEE MAN!
A POSTAL WILL GET YOU
"BEE KEEPING IN DIXIE"
60 PAGES OF PICTURES AND PRINTING AND PRICES
JENKINS & PARKER, WETUMPKA, ALA.
ITALIAN QUEEN BEE FROM JENKINS & PARKER WETUMPKA ALA.

☞In responding to this advertisement mention GLEANINGS.

INCREASE YOUR HONEY-CROP

10% to 25% by getting the Five-Banded Golden Italians. Took **First Premium** at Illinois State Fair in 1890. The judge said: "They were the quietest bees on exhibition; the drones were almost pure yellow." Warranted queens, $1.25; Tested, $2.00; Selected Tested, $3.00. Order now, pay when queens arrive. Send stamp for price list. 1tfdb

BARRED PLYMOUTH ROCK EGGS FOR SALE.

Good reference given.

S. F. & I. TRECO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

CHICAGO
BEE-KEEPERS' SUPPLY CO.

OFFICES:

65 CLARK ST., ROOM 14, CHICAGO, ILLINOIS, and TOPEKA, KANSAS.

Manufacturers of and dealers in bee-keepers' supplies. For prices of bee-hives, sections, shipping-crates, frames, foundation, smokers, etc., write for circular and special prices before placing your order.

J. B. KLINE, Sec.

1tfdb Please mention this paper.

ALLEY'S IMPROVED AUTOMATIC

SWARM-HIVER.

Thoroughly tested, and guaranteed to **SELF-HIVE** every swarm that passes through it. Sample mailed for $1.00.

AMERICAN APICULTURIST one year and Swarmer by mail, $1.50. **Sample APICULTURIST** with full description of **SWARMER**, illustrated, free. 1-4db **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

NEW * FACTORY.

Bee-Hives, Sections, Frames, Etc.

We have moved into our new factory, which is the largest and most complete in the world. we make the best goods, and sell them at the lowest prices. Write for free illustrated catalogue.

G. B. LEWIS CO.,
17-tfdb **WATERTOWN, WIS.**

☞In responding to this advertisement mention GLEANINGS.

THE CANADIAN

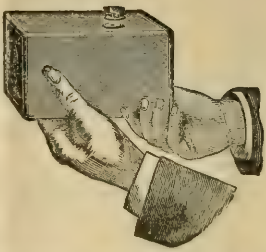
Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞Please mention GLEANINGS.

NEW KODAKS.



"You press the button, we do the rest."

SEVEN NEW STYLES AND SIZES,
ALL LOADED WITH ***TRANSPARENT FILMS.***

For sale by all Photo. Stock Dealers.

1-2-3-4d **THE EASTMAN COMPANY,**
Send for Catalogue. ROCHESTER, N. Y.

☞In responding to this advertisement mention GLEANINGS.

ENLARGED

The BEE-KEEPERS' REVIEW has been enlarged, a cover added and th price raised to $1.00. Never mind i you have seen copies of former issues, send for a copy of the last number, sent free, read it, admire it, and then subscribe. Address W. Z. Hutchinson, Flint, Mich

☞In responding to this advertisement mention GLEANINGS.

NEW FACTORY. LOW PRICES.

Eight-frame Chaff Hives. Closed-end, or Hoffman Frames, a specialty. One and Four piece Sections, etc. Send for circular.

WM. BURDSAL,
1-4db **Lebanon, Ohio.**

☞In responding to this advertisement mention GLEANINGS.

FOUNDATION & SECTIONS are my specialties. No. 1 V-groove Sections at $3.00 per 1000. Special Prices to dealers. Send for free price list of every thing needed in the apiary. **M. H. HUNT.**
1tfdb **Bell Branch, Mich.**

☞In responding to this advertisement mention GLEANINGS.

JUST OUT.

SOMETHING ENTIRELY NEW IN

HIVES!

CIRCULAR FREE.

Address

JAMES HEDDON,
DOWAGIAC, MICH.

2-3-4d Please mention this paper.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
E.R. Whiting

Vol. XIX. **FEB. 1, 1891.** **No. 3.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra

STRAY STRAWS

FROM DR. C. C. MILLER.

BEES had best be broodless yet.

The *Apiculturist* for January is a souvenir number with a nobby cover.

IF ALLEY doesn't stop fooling with that self-hiver he may make a success of it.

THE RAMBLER thinks there is a bonanza before us in developing a bee that will work on red clover.

"TO SELECT WELL among old things," says *American Bee Journal*, "is almost equal to inventing new ones."

BAIT SECTIONS in supers are strongly recommended, in *Api.*, by A. C. Tyrrel, as a partial preventive of swarming.

ANOTHER in the dairy business. The *Bee World* is going to give, "as it were, the cream of apicultural literature."

DZIERZON, at the age of 80, is living a quiet life, at Brieg, Silesia—just the age of Langstroth, who was 80 last Christmas.

UNITING BEES by spraying with cold water is recommended by *C. B. J.* It cautions against the use of flour if the bees should get wet.

An Austrian bee-keeper has invented an artificial comb made of tin, having cells the natural size. Didn't Quinby do that long ago?

THE NATIONAL BEE-KEEPERS' UNION is in good shape financially—$621.18 in the treasury. It's a power, for all it has only 331 members.

THE AMERICAN BEE-KEEPER is beautifully gotten up. Let's see. We've had *A. B. J.*, *B. B. J.*, *C. B. J.*, and now we have *A. B. K.*

THE *C. B. J.* has started opposition to the *Review* in the dairy business. It's going to give "the cream of all apicultural literature."

WIDE SPACING in the super, to keep the queen from laying there, R. M. Reynolds says, is all bosh. He has tried it 14 years with 275 closed-end frames.

In the month of January,
Likewise the month of February,
The busy bees they store nary
A drop.

"IN CUBA," says A. W. Osborn, in *A. B. K.*, "500 colonies can be kept in one apiary any time of the year, but they must be hybrids, not pure blacks or Italians."

ARTIFICIAL COMB is one of the just-going-to-be things in Cincinnati this time. Allen Pringle, who tells about it in *C. B. J.*, doesn't enthuse over it to an alarming extent.

THE "HEDDON POLLEN-THEORY," Heddon thinks, "is now a practical, settled science." May be; but sometimes he calls a thing settled just because it agrees with his opinion.

MRS. L. HARRISON, in *A. B. J.*, resolves to "endeavor to have one-pound sections weigh one pound." When you get 'em all to weigh exactly a pound, Lucinda, tell us just how you do it.

THE BEE WORLD is the name of a new 16-page monthly, 50 cents a year, published at Waynesburg, Pa., by W. S. Vandruff. A paper of the same name was published years ago, wasn't it?

DZIERZON SAYS: "The want of air fit for breathing, and perhaps also of water, is the cause of bees becoming restless, which ignorant and superficially informed people attribute to excessive heat."

NUMBER TWO, in *Canadian Bee Journal*, wants to know about "close-framed friends," in GLEANINGS, page 891. It's "closed-frame friends," Number Two. There is no such thing as "close-framed friends."

SOME SAY ventilation of the cellar is not needed; that upward ventilation of the hive will keep the air pure. Now look here: how much upward ventilation will make the air pure in a cellar filled with rotten cabbage?

Mouse poison, as prepared by P. Lattner (*American Bee Journal*), is a tempting dish. Make dough for a sweet cake, mix in it powdered strychnine, and bake. Must be capital; but, my! if the children should get hold of a piece!

Cold, according to Heddon, is the prime cause of bees consuming pollen, and the consumption of pollen in winter the sole and direct cause of diarrhea. Wouldn't it be shorter to say that cold is the prime cause of diarrhea?

The *C. B. J.* is going to have, after Feb. 1, "machines which will cast every line of type as it is set, and will do about three times as much work as an ordinary compositor." Say, Mac, will it have an automatic proof-reading attachment?

The Manager of the Bee-Keepers' Union says, "It will take money to do it, but it is the Supreme Court decisions that we need, for they will do more to guarantee to bee-keepers their rights and privileges, than any thing else!" Wouldn't it cost less to get some good laws made?

Dibbern's Hive-carrier is much the same as my rope. Instead of being all rope, it is "two square hard-wood sticks, a little longer than the hives, with pieces of stout cloth tacked between the ends." Carry by the cloth. His will be fitted on the hives more readily. Mine will stir up the bees less.

The Nebraska Bee-keeper is making trouble. *American Bee Journal* inquires if it has met its death, and Gleanings announces its birth on the anniversary of the same. It's too good looking to die unregretted. Nearly every one of those which died had a look as if somebody made it himself.

Germany is ahead of us. Instead of trying to secure for bee-keepers their rights through a series of tedious decisions, they have got a square law: "We, the king, decree: The privilege of bee-keeping to all inhabitants on their own property;" and, "Apiaries will be protected by civil right and law." How much of that Union's $600 would it take to get us such a law?

Tapeworm Remedy.—The *Medical Brief* says: The most successful pumpkin-seed remdy is made as follows:

Peeled pumpkin seeds, -	3 ounces.
Honey, - - - - - -	2 ounces.
Water, - - - - - -	8 ounces.

Make an emulsion. Take half, fasting, in the morning, remainder half an hour later. In three hours' time two ounces castor oil should be administered. Used with great success.

GENERAL CORRESPONDENCE.

QUEEN-REARING, ETC.

ABOUT THOSE CELL-CUPS, AND WHY DR. MILLER FAILED WITH THEM.

On page 19 I see that our friend Dr. Miller made nearly an entire failure in using my plan of rearing queens in artificial cups during the past year, and says: "I'd like to know what the trouble was." Beside me, also, lies a letter from another person, residing in Bloomington, Ill., in which he says that he has "utterly failed in getting a single cell built out from the cups," and closes his letter by saying, "Could you not give us an article in Gleanings that would throw some light on the subject?"

I am very much surprised at these failures, for I have letters from Texas to Canada, and from Maine to California, telling of the success the different individuals have had in rearing fine queens by this artificial-cup plan, used over queen-excluders. If the complaint had been about getting the queens fertilized when tried out of the honey season, I should not have been surprised; for I find that success can generally be obtained only during a heavy honey yield, in getting queens thus fertilized, although some colonies will keep laying queens in both stories through the whole season.

Now, not knowing all of the circumstances connected with these failures reported above, I do not know that I can give the reason why. I have never had less than three cells built from a single trial of from twelve to twenty cups, in all of my seven years' trial of the plan; and during the last five years I have reared all of my queens by this plan at all times, except very early in the season and late in the fall, at which times there will not be bees enough above to make a success of queen-rearing. While I have never had less than three cells completed, I have, time and time again, had the whole twelve or twenty, according to the number of cups put on a stick, completed, and the average number for the five years could not have been less than two-thirds of all the cups started. I think that Ernest will bear me out in this last, as he saw an average of the work done, he selecting the hives he wished opened. To those who do not meet with success when trying the plans given in Chapter VII. of my book, I would suggest that they try the plan, using a colony made queenless and broodless, as given in Chap. VI., only using the artificial cups instead of the queen-cups, as there spoken of, and put royal jelly in these as I directed in Chap. VII. If they fail then, I shall not know how to account for it unless they are not able to handle the little larva carefully enough so as not to injure it. After being successful with the queenless colony, next try it over the queen-excluder, always remembering that unsealed brood should be above when the prepared cups are given, and that the bees should be liberally fed if no supplies are coming from the fields. It is also well to allow these two frames of brood to stay "upstairs" 24 hours before the prepared cups are given to the colony.

Now, dear reader (any one who should happen to fail in using the plan), don't think hard things of Doolittle, for I have no more interest in "scientific queen-rearing" than I have in the A B C or any of the other bee-books, except that it is my "baby." I let the manuscript for the book go for less price than I get for this manuscript which I am at this moment writing, giving the whole thing to the world free, except the compensation for my time in writing the manuscript, and sent out the matter *with the only wish* that it might *bless* the bee-keepers of the world, many of whom are being blessed, if their words are a criterion to go by.

Some seem to think that the size of the perforations in the zinc excluder has something to do with the success or failure of raising queens in an upper story; but I think this is a mistake. The larger part of that in use in my apiary is the old Jones make, which is large enough to let many smallish queens through, while the rest in use is that sent out by Dr. Tinker. The Tinker make is the finest of any thing I have ever seen, and is simply perfect; but, so far as I can see, it gives no better results in queens than do the old uneven perforations of former years.

BEES ROARING.

Another correspondent writes: "It has been cold of late, and has now warmed up to quite an extent. Upon passing about among the bees I find some colonies which are roaring in a way similar to what they do in the summer. Can you tell me what the trouble is? and is it a sign of diarrhea?"

Bees having the diarrhea to an extent sufficient to spot the hives on the inside, generally give forth the roaring sound spoken of by the correspondent; but it is a rare thing that any single colony becomes thus uneasy so early in the season, much less a large number of colonies. From former experience along this line I should say that, during the cold spell preceding this roaring, the bees consumed nearly all of the unsealed honey inside of the cluster; and when the warmer weather occurred, the cluster broke up and the bees went out around on the sealed honey, uncapping it and taking more honey into the cluster, or what will be the cluster when re-formed again. This always causes a merry hum to be heard; and, if I am right in the matter, it could be no sign of diarrhea. Should the roaring be long continued with but slight abatement, the bees will gorge themselves with honey, and diarrhea will very likely result. Should it continue, I would look into the matter some warm day to see whether I could find out what the trouble is, experimenting on only one or two at a time, to see if matters could not be improved. It may possibly be that a mouse has got inside of these hives, and, by his running about, the bees are disturbed. If so, get him out and fix the entrances so that none can possibly get in again.

G. M. DOOLITTLE.

Borodino, N. Y., Jan. 12.

[As I have said before, I repeat again, that the artificial cell-cups that I saw at Doolittle's were accepted and built out by the bees to perfection. In our own apiary we did not have entire success with the cups, but some were completed, and hatched queens.] E. R.

MANUM'S VISIT CONTINUED.

OVERSTOCKING; HOW TO LOCATE OUT-APIARIES; IMPORTANCE OF WIND-BREAKS; MOUNTAINS AND HILLS, AND THEIR EFFECT ON APIARIES.

"Good morning, Mr. Barber; this is a beautiful morning."

"Good morning. Why, Manum, you came near getting the start of me. I am not accustomed to sitting up so late as we did last night, and I overslept this morning. Well, here is the paper you called for last night; and while you are mapping out your apiaries I will get breakfast."

Breakfast over—and a good one too—Mr. B. takes the map, and, after looking it over carefully, asks a few questions.

"Manum, how high is that range of mountains east of you, that appears so very near?"

"I believe, Mr. B., that they are 1200 feet high."

"I suppose the whole side of that mountain is covered, more or less, with basswood, is it not?"

"No, not by any means. If it were, I should not care to exchange locations with you. There are, however, a few basswoods scattered here and there on the mountain-side, and at the base they are more plentiful; but the hills, as we call them, that you see scattered over the country, have a good many basswoods on them; and as my apiaries are nearly all located near such hills, I have a fair basswood range."

"What do these double circles indicate, where there is a circle within a circle?" asks Mr. B.

"Those indicate apiaries belonging to other parties. For instance, Nos. 1 and 2 are owned by Mr. Charles McGee, who, by the way, is one of my boys, or was a few years ago, and he is the Charles I was talking to in GLEANINGS of Dec. 1. Nos. 3 and 6 are Mr. H. Stilson's apiaries. No. 4 is Mr. Fred Dean's; No. 5, E. Cox'; No. 7, T. Fish's; No. 8, E. A. Hasseltine's; and Nos. 9 and 10, Mr. L. O. Thompson's. The single circles indicate my own apiaries."

"Well, Manum, it seems to me that your territory is pretty well occupied, and, I should think, overstocked."

"Yes, Mr. B., I think there are bees enough on this little territory, especially in a poor season. When I started in the business there were none within 20 miles of me, except a few box hives here and there."

"What are all these marks, zigzagging from one apiary to another?" asks Mr. B.

"Those are the highways which I travel over in going to my apiaries."

"How far from your home are your apiaries, Mr. M.?"

"They are from 3 to 15 miles from home. These little squares on the diagram represent square miles; hence by counting the squares between each apiary you get the distance they are apart; and the circles, as you see, represent a radius of two miles from the center."

"I notice that your Meach yard is nearly surrounded by hills. Do you consider the hills of any advantage?"

"Yes, most certainly. In the spring the hills are a protection from winds; and as there are many basswoods on them they are an advantage in that respect, as they afford good forage all around and near by. I consider this my best basswood range and my poorest clover range. This year in August, I had 7 colonies starve in this apiary before I was aware they were so short of stores."

"How happened you to locate two apiaries so far from home; viz., the Ferrisburgh and Varney yards?"

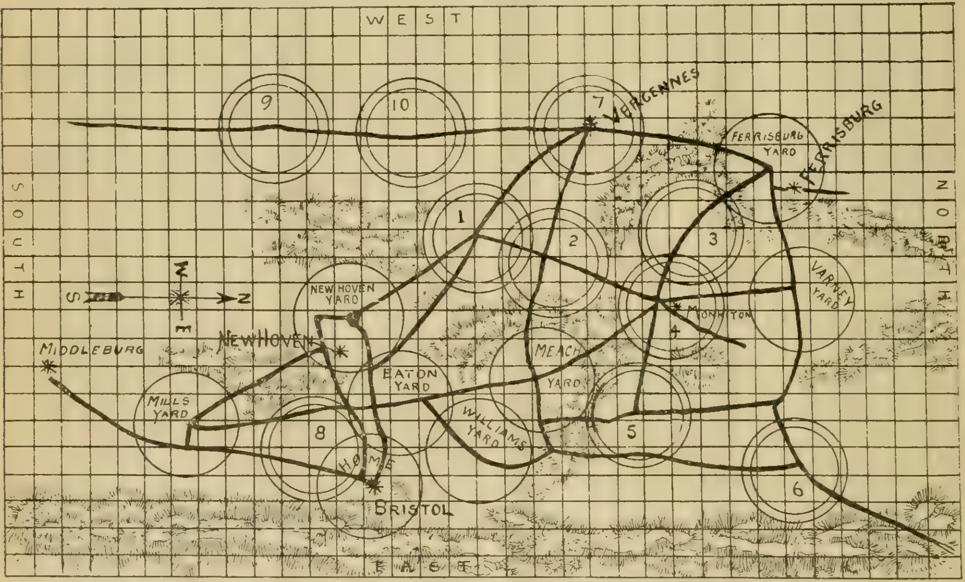
"I was obliged to go that far to get beyond and out of the range of my neighbors, as you see I was completely hedged in."

"I notice, Mr. M., that some of your apiaries are so near each other that they overlap each other's territory. Do you think they do as well where they are so near together?"

"No, sir, I do not, especially in a poor season; but in a good season I see no difference, all things being equal. I should prefer to have my yards five miles apart if I could so locate them; but owing to the formation of the hills, and the difficulty in finding just the right spot, and also permission to set an apiary, I was obliged to locate some yards nearer and some further apart than I really wished to. Bee-keepers who have never located out-apiaries can not fully comprehend the difficulties one has to contend with in selecting a suitable location. When selecting one I aim to acquaint myself with the surrounding country, after securing the spot for the yard. I go out prospecting through the fields and woods, to satisfy myself whether the location is a suitable one or not; and by the aid of a strong field-glass I am able to determine whether I am in a good basswood range without very much traveling, if I do this prospecting during or soon after the basswoods bloom, as then the blossoms and blossom-leaves enable me to see a basswood-tree at a distance."

"Do you always select a sheltered spot for your yards?" asks Mr. B.

"I always aim to, that my hives may be protected from cold winds in the spring; for I notice that, where my yards are most protected, the colonies in them are the strongest when the honey season opens; hence from these I get the best results, especially in poor seasons. To illustrate: My Williams apiary is on a sidehill, the upper half being well protected from the southeast and north wind. The lower half is protected only from the south wind, and that not fully. Now, it is a fact that the upper half always winters better, and the colonies are always strong at the approach of clover bloom; hence I always get much more honey from the upper half of that apiary. It is very seldom that I lose a colony in winter or spring from the upper half; and another feature that is very noticeable is, I very rarely have to feed those colonies in the upper half, as they usually have enough honey for winter, or nearly so; hence, from my experience with this apiary, I am satisfied that protection is very essential, and I am building high tight board fences, as fast as I can get to it, around such of my yards as are not well protected by nature; and, Mr. Barber, I am more thoroughly convinced than ever, since we have had these five poor seasons in succession, that, in order to be successful, we *must* have our colonies *strong* at the commencement of the honey season."



OUT-APIARIES AMONG THE MOUNTAINS IN THE VICINITY OF BRISTOL, VERMONT.

"Manum, do you ever move your bees from one yard to another in the fall, to have them fill up for winter?"

"No, I do not, because there is not much difference in one of my locations from the others, so far as fall honey is concerned."

At this point we arrive at Mr. Barber's bee-cellar, where I find 80 colonies already stored for winter. This cellar, if I remember correctly, is 20 x 30 feet. It is not a dry cellar; and as the bottom is often very wet, the hives are set on plank, which are set on hive-caps some 15 inches high, and are packed in as closely as they can be conveniently, and four hives high. Mr. B. removes the honey-board, and spreads a piece of heavy ducking over the frames, and over this a cushion three inches thick to take up the moisture. He aims to keep the temperature up to 50, and at no time does he allow it to get below 45. Mr. Barber tells me that his loss in wintering very rarely reaches 3 per cent. He is a very careful manager, and has made bee-keeping a success, and, I understand, is quite forehanded, having made the most of his money in the bee-business.

In order that we might have a longer time to visit, and a better opportunity to view the country, Mr. Barber took me to Canton, a distance of six miles from his house, where I took the cars; and, as I bade him adieu, I did so with the feeling that from him I had received a vast amount of knowledge which well repaid me for my journey. A. E. Manum.

Bristol, Vermont, Jan., 1891.

[Your map, Mr. Manum, is suggestive and interesting—the more so because it shows the mountains, hills, and roadways, and how you have to drive to reach each one. The first thing that attracted my attention, when I arrived at Bristol, was those mountains on the east. "Oh!" said I, "Mr. Crane" (with whom I was riding), "that is where Mr. Manum gets his basswood honey." But I was a little surprised to learn that there was little or no basswood on those mountains, and that his reliance for honey from this source is from certain hills; but those mountains furnish that beautiful Vermont white poplar for sections, so popular with the Eastern bee-keepers. I am doubly sorry now that I could not, or, rather, did not, steal the time to drive around with you over those zigzag roadways, and visit some of those yards. I learned a good many things when I went around the country with Mr. Elwood, and I have no doubt at all but that I could have picked up many a valuable item from you in a similar drive.

Overstocking must be a rather complicated problem with you. Why, what a lot of *other* bee-keepers there are around you! I should think you'd quarrel, so close together as you are in some cases; but I am reliably informed that there is the best of feeling among all of you, even though the proximity of your several apiaries must cut off, to a certain extent, your earnings from each apiary. When we get our apiaries down on a map we find out for the first time, perhaps, how close we are together. Say, Dr. Miller, what would you do in such a locality? Would you preach bee legislation, priority claim of locality, or would you move out?] E. R. R.

THE DOVETAILED HIVE.

SUGGESTIONS AND CRITICISMS.

Friend Root:—I have studied your Dovetailed hive well, I think, especially in connection with the subject of frames, i. e., thick top-bars, closed ends, etc.; and since you ask for criticisms and suggestions, and I have some to give, here goes:

I am thoroughly dissatisfied with the hive I have been using. I think, after nine seasons' experience, together with my study of hives through the medium of books, journals, etc., I have a pretty good idea as to what kind of hive I do want. Your Dovetailed hive comes nearer to that idea than any other now on the market, so far as I know. I have had a few in use the last year similar to it, and, after a year's trial, I am sure I have not miscalculated my preference, unless it may be in the matter of a brood-frame. But I do not like your hive in the following particulars:

1. I think that, although I have never used a closed-end frame, it is, nevertheless, the style of frame I want. But in two respects the combination of that frame with the Dovetailed hive is faulty.

(*a*) If I understand your description of the hive, the frame is of the same length as the "swinging" frame, having a bee-space at the end. I don't know what anybody wants of a bee-space back of closed-end frames. To me it would be a most prodigious nuisance. The frame should be about 3/16 of an inch shorter than the brood-chamber inside, leaving 3/32 of an inch play at each end. This would insure ease in manipulation where there is apt to be slight irregularity in length.

2. When you have a hive and frame so nearly adapted to reversing, either in part or entirely, why not have them quite so? The hive would be made with the ends rabbeted so that, if any one wanted to hang a frame in the hive he could do so, but have a stick of the right size to fill it up if desired. A single wire nail would hold it in place, and it could thus be easily removed. I would not make the frame to hang, but to sit on rests fixed on the bottom-board. Either one of two devices would do well for rests. One would be a tin T, ⅜ of an inch high, tacked on to the bottom-board, front and rear. The one in front would have to sit back about an inch from the entrance. The other device would be a metal strip at each end, ⅛ inch thick, by ⅜ wide, set its thickness in notches in the side cleats of the bottom-board, and just inside the ends of the brood-chamber. If there should be any danger of these strips bending from the weight of the combs, about two small blocks could be placed under each for props. We should thus have a brood-chamber and a frame, either one of which could be easily reversed. To reverse the entire hive we could simply turn it upside down, loosen the wedge or screw, press the frames to their place, and then key up again. Top and bottom bars should, of course, be the same thickness, and that not more than ⅝ of an inch, perhaps less. Secondly, you make your top-bar 1 1/32 inches wide, leaving only ¼ inch between them. Is not that rather close? I should think one would frequently want to take out a frame without moving other frames or wedges. There would be a poor chance to get a finger-hold. I know the object of such a top-bar is to prevent burr-combs. This brings me to my "thirdly."

I am not prepared to give up the honey-board. I have worked several years without it and a few years with it, and I am quite in love with it. That, you know, will go far toward preventing burr-combs. But, aside from that, the honey-board has three valuable features:

(*a*) I would have it queen-excluding always. It is comparatively seldom, it is true, that a queen will go into section boxes. Still, she is liable to go with a cluster anywhere when the brood-chamber is crowded, especially when there is a paucity of drone comb below in swarming time, as I desire there should be. I have known it to happen half a dozen or more times a year, and that is often enough to spoil considerable honey. When working for extracted honey especially, the queen will always go into the upper story unless prohibited, and I do not want her there.

(*b*) When hiving in contracted brood-chambers, much pollen is carried into the sections unless something is done to prevent it. A queen-excluder reduces the quantity to such a minimum as to amount to practical prevention.

(*c*) Bees will often gather up the cappings of honey or brood as they are gnawed off the combs below, and work them into the combs above, which mars the honey greatly. I have never heard any complaint of this from others, but I have often noticed it. But I have never known it to happen above a queen-excluder. The young bees are also less prone to travel over and stain the lower part of the sections. Wide and thick top-bars, of course, will have the same effect to some extent, but I think the honey-board is better.

(*d*) I would have the depth of the frame reduced at least two inches. This would be too great an innovation to urge upon you; but I wish the standard frame were not more than seven inches deep.

There, you have my idea before you. Introduce the modifications I have given, and I believe you will have the model hive for comb and extracted honey. GEO. F. ROBBINS.

Mechanicsburg, Ill., Jan. 10.

[If you will refer again to our description and engravings of the improved Dovetailed hive, shown on page 745, Oct. 15, last year, you will see that, where the closed-end frames are to be used, the ends are to be enough thicker to take up the extra space, but leaving a play sufficient to remove the frames. Note carefully the sectional drawings on 745. No, it would not do to leave the usual ¼ inch between the closed ends and the end of the hive. As we construct them for the Dovetailed hive, they can be used either to stand or to hang. A *hanging* closed-end is a little better for the ordinary hives in use. It will not topple over, and will kill fewer bees. Of course, if it is desired to make it reversible, all you have to do is to draw the nails, or, better, leave them out and use instead the bottom-rests.

In regard to queen-excluding honey-boards for comb honey, you are against the great majority of comb-honey producers, who say they do not want the excluders. For extracted honey they are a good thing.

Are you sure you are right about the excluders keeping pollen from the sections? Of the great representative bee-keepers that I visited last summer, not one, if I remember correctly, used excluding honey-boards for comb honey.

Pollen in the sections is usually the result of too much contraction in the brood-nest: and the tendency of the times is against contraction to less than 8 L. frames. It is far better to have a big, rousing colony on 8 frames than a medium one on 4 or 6 frames. If perforated zinc will keep pollen out of the sections, it ought to out of the brood-nest when drone-guards are on.

☞ What you say regarding cappings from old brood-combs is, to a certain extent, true; but I don't quite see how perforated metal will make much difference, unless it be the slight obstruction from the perforations. Some of the prettiest and whitest comb honey I ever saw was produced in Vermont and York State, without perforated zinc honey-boards. As supply dealers, and the largest manufacturer, of perforated zinc, we ought to boom that article, whether for *comb* or extracted honey; but we don't want bee-keepers to buy it for *comb*-honey production *if* it is not needed.

I know that top-bars $1\frac{1}{32}$ inches wide leave rather scant room for the fingers. With a follower and fixed distances, either closed-end or Hoffman, it gives no trouble.

After you have used closed-end frames for a while, you may modify your views somewhat in regard to the plain, slatted honey-board. Fixed distances will permit of narrower and thinner top-bars in the riddance of burr-combs.]

E. R.

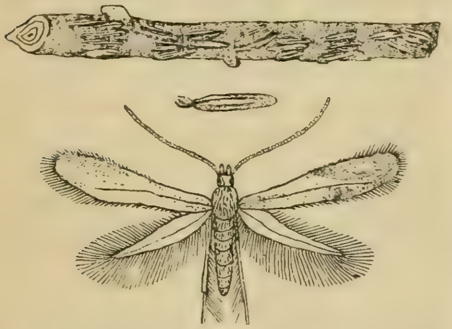
THE TINEID MOTH.

PROF. COOK TELLS US ABOUT THE LITTLE EGG-SHAPED COCOONS ON THE APPLE-TREES.

Mr. Chester Olmstead, East Bloomfield, N. Y., desires to hear through Gleanings of the eggs (?) which "literally cover" the twigs of his apple-trees. These are not eggs, though they look so much like them that it is not strange that Mr. O. mistook them for eggs. He, however, seems in doubt, for he adds, "I take them to be eggs."

These are the cocoons of a beautiful little moth, *Bucculatrix pomifoliella*, Clem.

As we see by the cut below (the single one is shown natural size), they rest side by side on the twig, often as many as eight together. Sometimes they are so abundant that they do "literally cover the twig," as Mr. Olmstead states. They are a quarter of an inch long, white in color, and elongated, as seen in the figure. The cocoon is ribbed, and firmly attached to the twigs. Next spring a beautiful tiny moth will come from each of these cocoons, unless the pupa has been destroyed. This moth is less than an eighth of an inch long, and measures but little more than a fourth of an inch from tip to tip of the wings when the latter are spread. The fore wings are white, with yellowish reflection. There are three brown spots on each wing—one a mere dot at the tip of the wing—as seen in the figure. The posterior wings are triangular, and beautifully fringed, as is generally the case with the *Tineid* moths. The moths lay their eggs early in the spring. In June the caterpillars may be seen eating the leaves. If disturbed they fall from the leaf, letting themselves down by a thread of silk which they spin for the purpose. They are nearly half an inch long when full grown; are dark yellowish green, reddish toward the head, which is brown. This first brood—the insect is double-brooded—spins its cocoons on the twigs, but among the leaves they are not so conspicuous as are the winter cocoons. The second moths come forth in late summer; the second larvæ feed in autumn, and the brown pupæ pass the winter in the elongated cocoons. Thus we have the life-history of this beautiful and interesting little *Tineid* moth.



These moths are so called because they belong to the family *Tineidæ*. As we should suppose, the moths of this family are very small. Thus they are sometimes called *Microlepidoptera*. Our common clothes-moths, some of the worst grain insects, and leaf-miners also, belong to this family.

In looking at these cocoons I find many with holes either at the end or on the side. These holes show that some parasite has eaten up the insects, matured, and gone forth to destroy other of our insect enemies. Again, on the buds of the twigs, and crowded in between the cocoons, many plant-lice eggs are to be seen. These are minute black eggs. They will hatch in the spring just as the leaves unfold; and the plant-lice which come from them multiply so rapidly that, unless checked by other insects—which is usually their fate—or the orchardist, they will do much harm.

These tineids are so small that they usually do little harm. If so abundant in June as to seriously damage the trees they would quickly succumb to the arsenites—the same that so speedily destroy the codling-moth and the canker-worms.

A. J. Cook.

Agricultual College, Mich., Dec. 22.

WEARING GLOVES.

DRESS FOR LADIES WHEN AMONG BEES.

In working with bees I always wear gloves. I think Dr. Miller has mentioned it in some of his articles, also, that he thought I would give them up some day. You need not tell him that I said so, but I don't believe I ever shall. Aside from the saving of stings (and gloves have saved me a good many stings), it doesn't seem to me as if I could ever endure the sticky propolis on my fingers.

I sew a pair of white sleeves securely to the top of my gloves, leaving no opening for the bees to enter. I use white, because the bees seldom, if ever, sting white. I used to fasten the sleeves to the shoulder with a safety-pin, but I found that very cross hybrids managed to get in a good many stings on my shoulders above the sleeves, as the sleeves did not reach quite far enough. I now make the sleeves very long, so they will reach well up on the shoulders, and fasten them together in the back with a little strap, buttoning them together in front with a similar strap. It takes much less time to put them on in this way.

One objection to wearing gloves is the time it takes to get rigged up for work. But I really believe I can work faster and better with than without them, for I do not feel so nervous about stings. Another advantage is, that they materially help to keep your dress clean—or, rather, the sleeves do.

There is one thing I decidedly do not like to do with gloves on; and that is, to clip a queen. I always draw a long breath when the operation is over; and I confess that, if Dr. Miller is within reach, I always carry them to him to clip.

I have never been able to get a glove that quite suited me. I have never tried rubber, as I imagined I should not like them, for the smell of rubber is very disagreeable to me. For some time I have used buckskin; but they are very heavy and warm, and decidedly uncomfortable, and, when well stuck up with propolis, are not very handsome, to say the least. I wish some one who has had some experience with rubber gloves would tell how he likes them, or any other kind of glove, for that matter. The subject is a very interesting one to me.

Perhaps if our bees were all pure Italians it might make some difference in my views. We have requeened all our colonies, giving them all Italian queens, so next summer I may have a chance to see how much difference it will make.

Another thing that bothers me is, to know what to make my aprons of. I have tried gingham, calico, and oil cloth. I don't like any of them. I want something that honey will not soak through readily, as I should like to keep my dress clean. By wearing two aprons at a time, and changing them very often, I have managed pretty well. But that is troublesome, and makes lots of washing, and I should like something better. I dislike the oil cloth, for it has such a disagreeable smell. I am thinking of trying bed-ticking this summer. It doesn't seem to me that honey ought to soak through very easily. I am afraid the objection will be, that it is so heavy and clumsy. Have any of the ladies ever tried it? If so, please tell us how you liked it. EMMA WILSON.

Marengo, Ill., Jan. 12.

[My good friend, you are striking on real practical matters in your suggestions, and this is just what we want. By the way, why not have paper aprons, and burn them up as fast as they become soiled—something like the Japanese paper handkerchiefs? Honey and propolis, to say nothing of beeswax, are very trying on one's clothes. Like yourself, I always feel nervous when my hands are daubed with either honey or propolis. Our remedy is a cheap wash-basin and a towel. If it were not for the looks of the thing, some sort of apron would be a very convenient thing for men as well as for women, during the honey season. Can we not not hear from more of the women-folks who have been helping among the bee-hives?]

KEEPING RECORD.

HOW IT CAN BE DONE BY MEANS OF A BRICK ON THE HIVE-COVER.

Friend Root:—Allow me to offer a few suggestions, in line with Wm. Muth-Rasmussen's article in Dec. 1 GLEANINGS. The general criticism to all such plans is, that they are too elaborate, taking too much time to learn the system, and then the chances of the stones or bricks being moved out of their position by visitors or children; and even dogs and cats jumping on the hive might do it. For the bee-keeper who has but few colonies, some such plan might be best; but for him who numbers his hives by the fifties or hundreds it is too cumbersome. I have been thinking of a plan adapted to such by using bricks, which I think are much to be preferred to either stones or number cards, for the reason they can be turned in three positions, each of which can have its meaning. These three positions in which a brick may be laid, viz., side, end, and flat down; by dividing the hive cover into three positions—front, rear, and center, would give nine points; and by dividing each of these positions into three parts, we have in all 18 points. Nor is this all. The brick may be placed on any one of these divisions in two ways—lengthwise of the hive or crosswise of the same, making in all over fifty different arrangements of the brick on a hive, which would certainly satisfy all the requirements of the most exacting.

The information needed or desirable in regard to the contents of a hive may be grouped under three general heads:

1. Of bees. This would include brood, eggs, and larvæ in all stages; also quality and quantity.

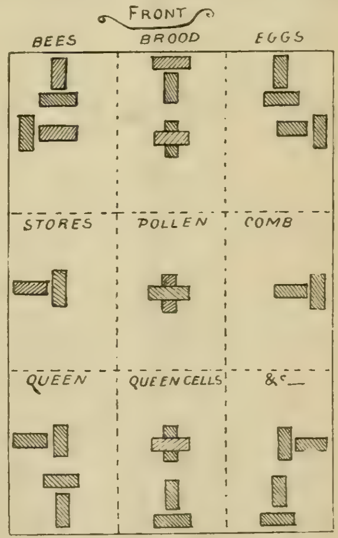
2. Stores, referring to both honey, pollen, and wax.

3. Queen, referring to quality, age, condition, etc.

Those for these three natural divisions of topics correspond with the three divisions or general places on the hive-cover; and, for convenience, say we call the front third the bee division; the central third the stores division, and the rear part the queen division. Then a brick placed anywhere on the rear third of a hive would mean something about the queen; on the central third, always something in regard to the stores; and one on the front third, always something in regard to bees or brood; and the absence of a brick from any of these places would signify that all is right, and no particular attention is needed.

Again, we might generalize and simplify our system by having the brick standing on end always mean immediate attention, and its position on the hive indicate in what particular point the attention is needed. Each bee-keeper can elaborate the system to suit his or her special needs.

Here is a figure of a hive-cover and its suggested divisions, which will make it clearer.



HATCH'S SYSTEM OF HIVE-RECORD BY BRICKS.

It might seem, at first glance, that one would need three bricks for every hive; but in practice it is not so; we have used a plan something like the above for years, although not so comprehensive, and find that one brick for each hive is usually ample. For keeping track of queens, our plan is to mark the date of her birth at the time of clipping, which is done only in the spring of each year, usually in May, on the front of the hive, in small figures; thus, "89" would indicate that the queen in the hive thus marked is clipped, and that she was raised in 1889. Next year, when time to clip comes around, and I find a clipped queen in a hive, I simply make a dash under the old mark. This shows that the queen has been found, and always shows how old she is. If a queen with unclipped wings is found, this shows she was raised after the spring clipping was done the year before, and therefore must be of last summer's raising. The old date is rubbed out, and the new one substituted, leaving off the 18, as that is always understood. When the clipped queen comes out with a swarm, the date is rubbed off the old hive and put on the hive in which the queen is put. The fact that the date is erased from a hive shows it has swarmed. If one wishes to know which the swarms are, some other mark is necessary. I have used this queen-record for years, and find it better than any other I have tried or seen in use.

As to keeping a record of each hive as to times of extracting, I have never found it practical, preferring rather to go over the hives with supers on, and removing some frames from those which are full, and substituting empty frames from those not full, putting the full ones in their places, thus getting all or nearly all ready to extract at once, which means economy of time and labor, and usually the honey is none the worse for the longer time on the hive. I speak from an extracted-honey producer's standpoint, for I have never done much with comb honey, twenty colonies in one season being the most I have ever run for comb.

Ithaca, Wis., Dec. 13. C. A. HATCH.

[Friend H., I like the idea of bricks, for several reasons. They are clean-looking, are not affected by the weather, uniform in size and shape, and stay securely where you place them. Something a little lighter, say half of an ordinary brick, would perhaps do as well; but as we have not got it, perhaps we had better use the brick. I have always felt that stones, from their awkward, ungainly shape, give the apiary a disorderly appearance; then when you lift off the cover they are almost sure to roll off. Thanks for your suggestion.]

EXPERIENCE IN CARP CULTURE.

ONE OF OUR BEE-FRIENDS TELLS OF HIS SUCCESS.

Friend Root:—When you first began to publish notes on carp culture I at once became interested, having a fine site for a small pond. I had long contemplated building a pond for raising some common fish, cat or perch; but now I turned to the carp. I built a pond by making a dam across the valley, and another at the upper end 100 ft. distant, thus turning the brook, which is kept running by a spring, around the pond; but a second and smaller one is pouring into the pond, just strong enough to keep it full, or nearly so. When full of water it was 3½ feet deep; but I soon learned that this was not sufficiently deep. In November, 1886, I introduced 10 carp, 18 months old. Shortly after this a severe winter set in, and I cut the ice to save the fish from suffocation; but I learned afterward that this was not necessary.

The spring of 1887 opened, and I kept a close watch upon my breeders, as I was anxious to have them lay; but I determined not to feed them, and that they should shift for themselves, just as I would have treated common fish. I would notice the fish only on rare occasions; but I found out that they were all alive later in the summer, as some boys while in bathing kicked up so much dirt that all came to the surface, and appeared to gasp for breath. But no sight of eggs or young fish could be found. Not draining the pond, I can not tell absolutely whether any fish were hatched in 1887, but I believe not.

The winter of 1887 was very severe, and I kept cutting the ice as before; but the pond began to leak. Fortunately the leak was stopped; and when the spring opened, the pond was full of water.

This time I decided to feed them, and coax them to lay. I accordingly fed about 2 qts. of corn at one time. I would drop it down in a certain place, and every day I rolled up my sleeves and felt down to the mess, and it would disappear in two or three days; but I could never see the carp play about the feeding-place; but when it was all gone I would replenish it. Thus I fed them for nearly four weeks, when I saw them spawn, May 11, 1888, and in a few days the pond was just thick with eggs. I had thrown some willow branches into the water, and these were all covered with eggs. I then discontinued feeding them, and have not fed any thing since. I began to think that these eggs might not be fertilized, and failed to hatch, so I broke off some of the branches with the eggs adhering, about enough to make a buttonhole bouquet, and placed them in a flat-shaped gallon jar filled with water, and set them out in the garden. In two days I found them all hatched. I counted about 40 fish; but they were so small, and had so much of a water color, that it was difficult to see them.

I left them in the jar, and in a few days they were all dead; but I had the satisfaction of knowing that the eggs in the pond were nearly all hatched, and no doubt the whole water was full of little fish. The cattle and hogs had access to the pond, and the latter would wallow in it to their hearts' content. I felt satisfied, for I wanted to test the carp in this way. The cows would stand in the water, and I was obliged to fence them off, as the water gave them sore legs. In August we began to notice young fish. I had the boys catch a few with hooks, and they were from five to six inches in length.

Late in October, 1888, we made an attempt to seine out some fish; but the seine was not long enough, and we happened to land a few of the spring hatch, 6 to 7 inches in length, and some of those I introduced in 1887. These fish (introduced in 1887), in the month of August, were stunted by their pond drying out. There were about 30 carp 5 inches in length, from the previous year's hatch. We also caught 5 of the larger ones, which we prepared for the table, and we thought them very palatable. Also a few very small perch were found. The winter of 1888 was very mild, and I watched for more eggs in May, but I did not find one. During these three years the pond had filled up with sediment so that but 18 inches of water remained, and I concluded that it was unsafe to let them winter in so shallow a water. I contracted with a neighbor to take all the carp that we might find. Dec. 4, 1889, we seined the pond, and landed, to our surprise, 180 young carp, of the 1888 hatch, measuring 10 to 12 inches in length, being very uniform in size. Also 5 of the old breeders, introduced in 1886, were caught, 22 inches in length, and weighing from 4 to 5 lbs.; and 24 of those introduced in 1887, weighing from 1½ to 3 lbs., and measuring from 14 to 20 inches, and a solitary one of the 1889 hatch, about 3 inches in length, thus showing that some eggs were laid and hatched. Six perch, about 6 inches in length, with 200 young, about 2 inches in length, were also landed. These six perch, I think, found their way to the pond by accident. They were only about 1 inch long in October, 1888. It is these in company with the carp that no doubt ate all the eggs or young carp if any hatched. But why did the 200 perch survive? I think they are somewhat more spry, and dodge the larger fish, and thus escape from the cannibals. Not feeding the breeders, and the chilly weather during May, may also have caused the shortage of eggs. You will notice that the growth of the carp does not approach that of many other breeders who take extra pains in feeding them and weeding out other fish.

The neighbor's ponds were very low during the latter part of 1890. Dec. 24 we seined one pond, which was too shallow to risk any fish in, and transferred them to another; and we find that the year's growth with all the different sizes is even smaller than it was with me. Along with the carp we found hundreds of perch and cat-fish, but could not find a single carp of this year's hatch. I believe if they had been undisturbed for years to come, with 270 breeders, no young carp would survive, even though some might hatch. Another neighbor introduced 30 carp 7 inches in length. In 1887 the pond was flooded. Later, and when we seined it in November, 1890, we found only 4 left. They weighed 7 lbs. each. Also several thousand common fish were found, but not a single young carp. No doubt these four carp lived on the wild fish, which accounts for their weight.

Mr. Root, I do wish you could have seen these four fish. They were as fat as hogs. After these careful observations I have come to the conclusion that the safest way for an ordinary farmer is to make a pond deep (7 feet or more), and proof against overflows. Then stock the pond with young fry in September. I think this by far the safest way to go into carp culture. I should be glad to hear from others who have experimented with carp. L. F. DINTELMANN.

Belleville, Ill., Jan., 1891.

[Friend D., we should also be glad to hear from others; but inasmuch as there is a journal devoted to carp culture, we think it best not to give very much space to it here. You bring out in your communication a fact of great interest to me; namely, that if the eggs be removed from the pond, and placed in a glass jar out in the sun, young carp may be hatched out by the million, perfectly secure from their voracious foes. My impression is, that the principal difficulty with carp-ponds in general is that common fish get in and eat the eggs and young fry. Our own pond has no communication with any other body of water; and yet common fish make their appearance as fast as we can get them out. They are probably brought in by the eggs adhering to the feet of wild water-fowl. Of course, drawing the pond off and sorting them out from time to time will keep these enemies in check. But it needs somebody with a good deal of enthusiasm in the business to follow it up.]

ERNEST'S NOTES OF TRAVEL.

AT DR. MILLER'S, CONTINUED; REVERSIBLE BOTTOM-BOARDS; MICE IN BEE-CELLARS, ETC.

The next morning, Monday, I arose, fully refreshed. The doctor wanted me to stop another day; but I told him I must take the train at noon.

"Well, then, we can not afford to waste any time," said the doctor.

I had a curiosity to know more about those deep bottom-boards he is using, and so down into the cellar we went. He had already put in some 25 or 30 colonies, and the rest were still out. The doctor had told me, if he could only get me into his cellar he could convince me that his reversible bottom-boards were a good thing, and when there I had to assent that they were; although, of course, I insisted that Boardman's plan of leaving bottom-boards off entirely was just as good, and cheaper.

"But," said the doctor, "*I* can not carry hives of bees into the cellar with no bottom-boards, without the bees dropping out and flying all over."

"If you select a rather cool day, I do not think you will have very much trouble; at least, I do not have. Still, I admit that there is a little trouble, occasionally, especially with the hybrids. Latterly we have carried the bees into the cellar with the bottom-boards on the hives. Our carrying - bail catches under the bottom-board, and hive and all is carried in. When there the hive is lifted off its bottom, and placed in position, and so we bring in each hive. The bottom-boards are piled up in one corner of the cellar, and the bodies of the hives are stacked up, *a la* Boardman. So you see, doctor, we have no trouble about bees flying out."

"Yes," said he, "but don't you have trouble by a lot of bees clinging to the bottom-board?"

"We should have," I replied, "if we carried the bees in on a warm day. We wait till the temperature goes down to 20 or 25, and then the cluster will have contracted enough so that, when the hive is lifted off its bottom, there will be no bees adhering. I will make an exception for hybrids. The least disturbance will make them expand their cluster, and boil all over the bottom-board. As we do not keep hybrids to any great extent, and do not propose to, this trouble does not figure very largely with us. I admit, doctor," I said, "that the reverisble boards are a splendid thing. As you do sometimes have a few hybrid colonies, your plan would have that advantage."

"But it won't do for me," said the doctor, "to pile the hives up *a la* Boardman. You may say it is not necessary to have mice in the cellar; but *I* have them, and can't very well keep them out. As I explained to you, I use this coarse-mesh wire cloth to close the entrance to all such vermin. It has a coarse mesh, you see, so the bees can easily pass out."

"Yes," I said, "circumstances do sometimes alter cases. My cellar is made entirely mouse-proof. Still, there was one little chap that crept in last winter. One Sunday evening while Mrs. Root and I were sitting before the grate fire, over the bee-cellar, we heard a peculiar sort of noise. The cat picked up her ears, and seemed interested, and cautiously crept to the point whence the noise proceeded. I said that would never do to have a mouse in the bee-cellar, so down I went with the lantern. I examined a number of bees on the floor, and found that the mouse had been eating at them. It was pretty dark in the cellar, but I ran my hand up, as well as I could, where I had heard the mouse. By holding the lantern up I discovered a sort of black hole. I thrust my hand into it, and was somewhat horrified to find that there had been a fire there at some time or other, though it was, evidently, from no fault of the rodent. This hole was directly under the grate tiling, and it was evident that the heat had been at some time so intense as to burn out the woodwork. I did not care any thing about the mouse; but I made up my mind that our comfortable grate should not run any more that winter. Although I was deeply grateful to the mouse for causing me to investigate the premises in the cellar. I set a trap and caught him. returning evil for good; so you see. doctor, if it hadn't been for the mouse I might have lost all the bees. No, sir; mice do good sometimes, even to bees."

I would say to our readers here. by way of parenthesis, that I had the grate repaired, and now Mrs. Root and I enjoy the comfort of sitting before it again evenings. Although open fire is warm and cheerful, we want it primarily for ventilation. It is well known that a grate is one of the best ventilators in the world: and our house, almost at all times, feels as fresh as a spring morning. As the grate is not sufficient to entirely heat all the rooms, we have independent heat besides. I drop this simply as a hint to some of our readers who may possibly have in mind the building of a new home or the reconstruction of an old one. If the grate is set by an experienced man there will be no trouble from fire. My first grate-setting was very poorly done; in fact, I might say, put up with criminal carelessness.

Well, to return. The doctor and I strolled about the bee-yard, talking about any thing and every thing. Our thoughts finally reverted to bee-conventions. As the air was chilly, we thought we could discuss this matter a little more comfortably in the house, before Dr. Miller's open-grate stove.

I will remark here, that, if I hadn't a grate, I would certainly have an open-grate stove. You will be surprised to see how it will freshen up the atmosphere in the house.

Well, when we had seated ourselves comfortbly, I said to the doctor:

"You have a big talent in helping to liven up a bee-convention. I have been wondering for some time whether we could not employ this gift in some way in Gleanings. In reading your articles, doctor, our readers do not get half a glimpse of your fund of good nature. Now, I have been thinking for some time that it would be a good scheme for you to have a department of short items, where you can give some of your little spurts of fun and friendly clips once in a while."

The doctor very modestly admitted that he did have a talent in that direction, and that he would be glad to use it if we could devise some way whereby he could. To make a long story short, the upshot was that we started a department in our journal, entitled, "Stray Straws." You know the rest, and of its merits and character you are to judge.

As it was approaching the hour of train time, after an early dinner I bade adieu to Dr. Miller, and took the train for Chicago.

A VISIT TO THE OFFICE OF THE AMERICAN BEE JOURNAL.

By looking at my railway guide I found that I had a little time in the city before my western train would take me home. On arriving at the city I made direct to the business place of T. G. Newman & Son, 246 Madison St. On reaching the place I took the elevator and forthwith was ushered to the top floor; and before I was hardly aware of it I was in the presence of the editor of the *American Bee Journal*. As usual he was hard at work at his post, and so likewise was his son, Alfred H., in his department. I wonder whether anybody ever found them other than busy. And being in the heart of the city, I wonder if they are not more or less pestered by visitors. Every thing had the appearance of that clock-work regularity and system that makes the old *American Bee Journal* always on time. They have very pleasant and commodious quarters, and occupy the whole top floor of a large building. After a pleasant chat with both the Newmans, we went back to the office, when, whom should I meet but our friend W. F. Clarke, of Guelph, Ontario, the former editor of the *American Bee Journal*? He was on his way to his home, Guelph, Ont., Can. I was obliged to make my stop shorter than I wished; and after a short visit of perhaps an hour, I took my leave.

DOES GLEANINGS UPHOLD TRUSTS, RINGS, AND MONOPOLIES?

A REPLY TO A DISSATISFIED SUBSCRIBER.

Please discontinue Gleanings, as I do not wish to take a journal that upholds trusts and rings and monopolies, as I see you did in Gleanings for Dec. 15. Alvin L. Potter.

Milan, N. H., Dec. 20.

[Friend P., we will discontinue your journal, of course; but you surely do not state it fairly or truly. Gleanings strives to avoid uncharitable extremes; and our country is certainly *suffering* because of the extreme views taken by some of our people in regard to this matter of labor and capital. The Bee-keepers' Union, which has been such a protection to more than one of us, might be called by a certain class a "trust." It is a combination of bee-keepers to maintain our rights, and to protect us from spite or prejudice. Where men of wealth combine together to wrest from any class of people their *just* rights, Gleanings would by no means uphold them; but when the laboring classes make grievous mistakes in rushing to the hasty conclusion that some of their best friends are enemies in disguise, Gleanings can not well do otherwise than to utter a voice of warning. One extreme is anarchy, and the other is plodding along and letting everybody who is so disposed run over you and help themselves to the fruits of your hard labor, without a protest. The farmers who sold their butter for 10 cents a pound when it was justly worth 25, are a fair illustration of this latter extreme; and small bee-keepers who take their honey to town and sell it for what anybody is pleased to offer them, also belong to this extreme. Just let me give you a point right here.

Most of the readers of Gleanings are acquainted with Dr. A. B. Mason. He is a man who has been largely a servant of the public. He is constantly called upon to preside over assemblies, and, in fact, to manage crowds of people when nobody else can manage them. He has wonderful ability in that line, as you well know; and yet Dr. Mason is a poor man. He makes his living by keeping bees, and by his daily toil in his business of dentistry. He is a devoted Christian, and a good man in every way. Well, at our Detroit convention somebody spoke of the piece of newspaper pleasantry that is going the rounds, to the effect that the poorest *crop* that America ever raised is her "crop" (?) of *millionaires*. Almost everybody says amen to this, and seems to think it is true. Why, I myself have often felt sad about it. Well, perhaps we ought to feel sad; but here is Dr. Mason's reply, as nearly as I can remember it. Said he, "I do not agree. I do not believe a word of it. I wish there were *ten times* more of them."

I protested by saying, "Why, Dr. Mason, I am astonished at you."

He replied, "I repeat it; I wish there were *ten times as many more of them*."

Now, I presume Dr. Mason means this: That it would be a blessing to America if there were ten times as many men with the brains and ability, judgment and wisdom, the skill and experience, to manage large enterprises so as to make them successful. It is these large business enterprises that give our American people work. Now, a man lacking in brains, or a man lacking in *virtue*, can not, as a general rule, manage such large enterprises. An *intemperate* man may manage people and capital a little while; but it can not be for long. The man who becomes a millionaire must be a temperate man, and, to some degree, *it seems to me*, a *liberal* and *honest* man, or he can not succeed. If men become millionaires by trickery and fraud, then all good men and women ought to combine in a ring, trust, or monopoly, and fight them to the bitter end. The fighting should, however, be done in a legitimate and orderly way. We must be law-abiding citizens, and we must have faith in each other, or we shall surely jump from the frying-pan into the fire.

Now, if any reader of GLEANINGS wishes it stopped because of the above position, we will stop it with the kindest and pleasantest feelings, and we will refund all money due. It is quite likely that GLEANINGS *will* lean strongly toward *charity* and faith in mankind, for it does seem to me that our greatest danger lies in too little faith in each other; and this faith and love should be broad enough to reach from the *poorest* day laborer to our *richest* millionaire.]

THE RAMBLER IN WARREN.

HE ENCOUNTERS A SEVERE CASE OF BEE-FEVER; MORE HOFFMAN FRAMES AND NO BURR-COMBS.

Rhode Island hospitality did not end under the roof of Bro. Miller. We rambled to the thriving town of Warren, and to the residence of Dr. J. M. Merchant. Mrs. Merchant desired expert counsel in relation to the doctor's malady, the bee-fever.

We found that the doctor had for many years been subject to feverish attacks, some longer some shorter, but none severe. For instance, the hen-fever had a very thorough run; but the usual appliances of pills, plasters, a sweat (or its equivalent, a little curtain admonition), had resulted in an effectual cure. But now the bee-fever had taken him with the utmost severity. The family supposed it would succumb to the usual remedies, and a little patience on their part. But old and tried remedies had no effect, and the fever was raging clear beyond all expectations, and now had developed the alarming stage of running in instead of out. After a thorough diagnosis of the malady we traced the germs to that enthusiastic Miller over in Barrington, and promptly advised that the doctor be not allowed to cross the river. This was as promptly decided to be out of the question, as the doctor had a very strong mind of his own. From careful observations we should judge that the fever has yet a long time to run.

HARD CASE OF BEE-FEVER.

DR. MERCHANT'S APIARY BY THE BAPTIST CHURCH.

Dr. Merchant is an active physician, with a large and lucrative practice. His apiary is located in his back yard, and it has a splendid backing in the form of a Baptist church. It is in the center of the town, and is not a nuisance to his neighbors or to the church-going people. The field here will sustain only about twenty colonies, and the doctor has accordingly a little less than that number. Like all down-east Yankees, Dr. M. is very ingenious; and every thing in the yard and in the hive is as near perfect in construction as possible. The hives and crates were of the cabinet-shop order in nicety, and many problems have been patiently worked out here. If the problem is found to be a hard one, he just thinks it out or goes over to Barrington and gets another addition to his bee-fever by thinking it out with Bro. Miller.

MR. MILLER AND DR. MERCHANT THINKING IT OUT.

The closed-end Hoffman frame is used with wide top-bars, and here we again saw the crates and honey-boards come off with not a brace-comb between. Aside from the frame, the hive was an invention of his own, and was provided with a side-opening feature, allowing the use of division-boards for contracting the brood-chamber, and allowing spaces on each side for the cork filling, which the doctor found an effective method for wintering. For summer use, the supers are provided with an extra cover, and the wintering cover is turned back against a proper support—in this case, a fence. This plan allows storifying to any extent. We find the practice here is to get one crate of sections nearly filled, then raise them and insert under a half-depth extracting-super. The photo of the hives by the church shows this plan of working, very clearly.

Dr. M. was quite enthusiastic over Alley's drone-trap. Being away from home at all hours of the day, dispensing pills and powders, traps are applied to every hive liable to swarm, and thus far they have been a success in preventing the loss of valuable queens.

Dr. M.'s crate was a little different from any we ever saw, and several points about it struck the Rambler very favorably. We were in hopes to give your readers a sketch of it in connection with this ramble, and will promise to do so as soon as we receive a sample crate from headquarters.

Prof. Cushman's large exhibit from the Experiment Station gave us a desire to visit him at Kingston; and though we were cordially invited to do so, our time was limited, and we had to refuse this and several other invitations.

While in Warren the Rambler had the pleasure of visiting with the doctor the town of Swansea, Mass., and the ancient home of our ancestors. The Rambler's grandfather emigrated from Swansea to York State about 1795; and the old homestead, about 185 years old, where four generations of our ancestors had lived, was still standing. Near by was the family burying-ground, now sadly neglected; and as we tried to decipher the moss-covered inscriptions, how forcibly the following lines came to mind!

> They died—ah! they died—and we things that are now,
> Who walk on the turf that lies over their brow,
> Who make in their dwellings a transient abode,
> Meet the changes they met on their pilgrimage road.
>
> 'Tis the wink of an eye; 'tis the draught of a breath
> From the blossom of health to the paleness of death;
> From the gilded saloon to the bier and the shroud—
> Oh! why should the spirit of mortal be proud?

Rambler.

FULL SHEETS OF FOUNDATION, ETC.

ARE WE USING THEM TO EXCESS? THICK TOP-BARS.

After reading a good deal about the thick (or heavy) top-bar, in which Ernest seemed to take considerable interest, and after using the light ones for some time and being bothered by their sagging down and getting frames and combs out of shape, I ordered 300 frames in the flat, ready to nail. The top-bars were to be ¾ inch thick, bottom-bars ½ inch thick, and the ends the same as the last named; and when they were nailed together they made a frame that was strong and durable, and hard to beat, in my estimation. Such a frame, made like the above, with a full sheet of foundation well wired in, when once drawn out by the bees makes a beauty of a comb. I consider foundation indispensable to the bee-keeper; and for the last few years I have used full sheets in all of the frames that I use, both for lower hives and surplus box (or extracting-box). These are well wired in, so there is no chance for sagging; and I am fully convinced that it well repays the bee-keeper to do so every time, although it costs him considerably more just then.

I really believe there is more benefit derived financially to the bee-keeper, from the excessive use of comb foundation, than any other thing he can use about the apiary. And I must say, I have not been so surprised in the last five or six years as I was to read what friend Hasty said in regard to foundation, page 33, where he says, "If the truth were generally known, the sale of foundation would be greatly reduced." Now, if such were the case (although I can't see it in that light) I should be very much obliged to friend Hasty if he would explain through Gleanings wherein there can be less used, and at the same time be as much of a benefit, in a financial way, to the bee-keeper, as though it were used still more extensively than at the present time. By using whole sheets of foundation the apiarist can control his brood-rearing mostly to his own liking (for there are not many of us who make it our business to raise drones), at the same time running for extracted honey. I would ask you all, What is there more perplexing to the bee-keeper, when he is running exclusively for extracted honey, than to now and then find combs filled with brood in the surplus boxes, where he expected them to be filled with honey? Now, if they are drone combs, the space so filled is worse than a dead loss. But, on the other hand, if all are worker combs so filled, they can be taken to some weaker swarm and put in their hive, and strengthened.

Some time ago, before I purchased some of A. I. Root's queen-excluding zinc that I used to keep the queen from going up in the upper story, I made some fine swarms artificially by having all worker combs in this way: My hive and surplus box hold 8 frames each; and when

I found in the surplus box from four to six combs well filled with brood I would set it off and remove the old hive to a new stand; then I would take a new hive (empty of course), and transfer the eight frames from the surplus box into it, and place it on the old stand, not caring which one retained the queen, for one *had* to be queenless.

There are very many more good points in favor of the excessive use of comb foundation; and it is a subject that is often brought up at our conventions, and fully discussed, and I for one have yet the first time to hear any one claim that we can get along just as well without it. BENJ. E. RICE.

Boscobel, Wis., Jan. 6.

BEE-KEEPING IN TUNIS.

ANOTHER LETTER FROM P. H. BALDENSPERGER.

When I first landed in Tunis I had to put aside the impression which I had always had in regard to "Afric's sunny fountains," for I had to put on every warm bit of clothing. It is true, it was the beginning of November; still, about the same time in Palestine we are generally suffering for want of rain, which was the case this year again, while in the North of Africa, Tunis and Algeria have had a great deal too much.

Owing to the want of vegetation in the immediate vicinity of Tunis (town), very few bees are kept. I have seen only a few flying about the sweetmeats one finds in all Oriental towns, put before the public on large trays, in front of the shops. Always accustomed to see the yellow Easterns, the sight of those black ones excite my curiosity. I had been told to look for bees on the other side of the gulf of Tunis. A small sailing vessel took me over in a couple of hours. On the point of the cape, and commanding the entrance, covered by divers destructions, lies the once mighty rival of Rome, so thoroughly destroyed. Seldom did ruins affect me so mightily as those of Carthage. Though in Palestine ruins abound, yet this ruler of the Mediterranean makes you feel that we are all but dust. The archbishops of Algiers and Carthage have built a beautiful cathedral on the ruin; and from the ruins in the excavations, beautiful marble statues and columns have been brought to daylight, showing the art of this ancient place. Thousands of olive-trees on the surrounding mountains make the scenery more beautiful.

The Tunisians keep numbers of bees out in the country, and they themselves also consume a good deal of honey, as the Mohammedans do not use any alcohol nor any preserved fruits in tins. They are fond of dark honey, and do not take very much to white or light-colored honey.

All over Algiers and Tunis the bees are kept in hives made of wickerwork, where willows, pomegranates, and such trees abound. The hives are long and square, made out of fennel-stems where those abound. These fennel-stems are about ten inches long, fastened together by passing a stick the whole length of the stems, placed sidewise together, and thus the four sides are again fastened together, the hive being about 3 feet long. They place them on a log of wood to keep them from the immediate dampness of the soil. The hives are smeared over with manure and sand, only one row at a time being placed beside another. The hives are again covered with straw, to keep them from the heat and the rain. The next row is placed in front, a few feet apart. They have generally one or two swarms from a good hive in April and May, and they take out the first honey chiefly from wild clover, etc. Later on, in favorable places they have a second crop of carob, thyme, and other aromatic plants. In some regions the rosemary abounds. There are also orange-groves; but up to this time they know nothing about orange-blossom honey, as the greater part of the apiarists are Arabs, going on in their primitive fashion. In Algeria they seldom or never move their hives expressly for pasture; but as the country people are all nomads they now and then are obliged to move the hives with the general move of the tribe.

The North African bee is about the same in color as the Maltese—black, with yellow fuzz. They seem to be a good honey-gathering bee, very prolific, and less inclined to sting than the Eastern bees. They are great robbers, but, as a rule, are not so active as the Easterns in attacking, and defending themselves and hives both against men and bees. We were transferring some hives a few days ago from a box hive into the bar frame; but no sooner had the bees smelled the honey than on they came, rushing, robbing away, and beginning to sting a little bit too. We could transfer only two hives at a time. The Palestines, though fierce robbers, would have left us in peace for at least four or five hives, but would have then been very ugly toward us too. The queens of this black race are not so easily found as our Easterns, as they differ much less in color. This queen is dark brown, and at this time of the year a good deal smaller than she is in spring when she is laying away with all her might.

Like all the Eastern nations they know very little about queens, drones, and workers. They believe that the bees gather the eggs from the flowers to produce young bees; or, again, that the queen is simply reigning and giving orders while the workers are really the mothers. They have a great veneration for bees, as the Koran tells them they are holy animals. On this belief a certain tradition is current among the Algerians. A young barbarian, Joussef Ben-Taschefin, succeeded, in 1036, to the throne of the last fatimite khalif of the Maghreb Abu Bekr. This Joussef was the founder of the Almoravides (European corruption of the word *Almorabith*—the priests—now corrupted into French as Marabut.) The father of Joussef was a potter, and was wandering about in the gorges of the Atlas Mountains to sell his wares. His wife followed him everywhere, carrying Joussef on her shoulder, as is the custom. A swarm of bees settled on the head of the boy. Astonished at this, the parents set to counting the bees, and found a hundred. They immediately knew it was some extraordinary event, and asked a divine (*talebu*) of great renown. The divine now explained to them that the will of God very clearly manifested itself, and that this child would become great, and reign from the Occident to the Levant; that he would have a glorious and long reign, and that each bee represented a people, and the swarm the whole of the nations united into one under his hand to form one large empire. He became lieutenant of Abu Bekr, who confided to him the command of the *Lamptunes*, a mighty tribe. Joussef took Fez and Mequinaz, the khalifat of the Edrissites, at the head of 80,000 horsemen, then marched toward Themcen, and subdued all to Beni-Mezegrena, in Algeria. After his return he founded Maraquesh (Morocco), and was thus prince of Morocco and the greater part of Algeria; but, unsatisfied with this, he succeeded in subduing all the north of Africa to Egypt. He then took the title of "Prince of the Musselmans and Defender of the Religion." Arab chroniclers say he built a vast bridge from Africa to Europe across Gibraltar, and took Mohammed-ben-Abd, ruler of

Mohammedan Spain, prisoner, without one single lost battle. Joussef died at the age of a hundred years, exactly the number of bees that were counted in the swarm.

The Arabs are very fond of honey, and this is a great cause why Algeria does not export a great deal. Here, also, they have manure to make the hives. The only time they visit the bees is to take out the honey, which they put in earthenware trays, and then press out the honey, simply by forming a ball out of the honeycombs and squeezing it out as fast as possible. Comb honey is never kept for sale. Some fine comb may be had if ordered beforehand. The wax is purified and brought to the market. In the Kabyly Mountains are the Kabyles (a different race altogether from the Arabs, for they are fair, and have a different language). They are very likely descendants of the Vandals, and may even have been Christians before Mohammedanism reigned here. The women of this tribe have a cross tatooed on the forehead, some also on the cheeks or chin—an old tradition they have probably carried through for centuries. These Kabyles are a good deal more industrious than the Arabs; have divers arts, as soap-making, pottery, and others. They live in stone houses in their wild mountains. Their women are unveiled, and they have a kind of shoes or boots made of cloth, resembling very much the old Germanic warrior's or Roman's foot clothing. They move their bees, too, to better regions when they find a good place of pasturage. Their land is better cultivated than the Arabs', and they raise a good many olive and fig trees. They are as fanatic Mohammedans as the Arabs, and in 1871 they were the fiercest rioters against the French, massacring all Europeans they could get hold of till the regiments coming back from Prussian captivity immediately checked the insurrection. The punishment has been very severe, but they learned to support the easy French yoke, and are even glad to call themselves French as soon as they are away from home.

PH. J. BALDENSPERGER.

Algiers, Africa, Dec. 18.

[Friend B., your legend about the little swarm of bees (just 100) reminds me vividly of my early days in queen-rearing. I had a great number of little hives with three or four combs three or four inches square. Well, when these little nuclei got their hives full they would swarm out; and swarms of bees, about as large as a goose-egg, got to be such a common occurrence during the height of the honey-yield that they were the sport of the neighborhood; and a queen with perhaps a hundred bees was likely to alight almost anywhere or on almost anybody, so that it is quite likely that so much of the legend was absolutely true.]

KEGS INSTEAD OF SQUARE CANS.

WHY A COMMISSION HOUSE PREFERS THE FORMER.

We note the discussion regarding the 60-lb. can, and the use of the same for extracted honey. As a rule, they are used exclusively in California; and all the honey we receive from there is put up in these cans, two cans in a case. This fact is generally known among the trade; and when they order California honey they expect to get it in these cans. For basswood, clover, and buckwheat honey, we have always advocated and advised the use of kegs holding about 150 to 200 lbs., or half-barrels holding about 300 to 350 lbs. We believe these packages are generally used in this State, Michigan, Wisconsin, Ohio, and Illinois. We receive large quantities from these States, and have always received it in kegs or half-barrels, and sometimes in barrels, holding 500 lbs. For our market we favor the use of kegs, half-barrels, or even barrels, because these packages find ready sale, and our trade prefers them. Besides they are less expensive, and cheaper for the producer than the tins. We can not advise the use of them when there is absolutely nothing gained. Honey in kegs, half-barrels, or barrels, will sell just as readily, and at as good a price, as when packed in tins. The same may be said for Southern honey. Kegs, half-barrels, and barrels, are the packages our market demands for extracted honey, with the exception of California.

HILDRETH BROS. & SEGELKEN.

New York, Jan. 10.

[Square cans *must* be used in California because the climate there will shrink the wooden packages; in fact, kegs would be utterly useless with them. We have always advocated the tin cans for *all* sections of the country, but perhaps there are good reasons why kegs should be used instead in this part of the U. S. They are easier handled, and, in some cases, can be shipped on a lower classification. While square cans will not shrink they are liable to spring a leak if the boxes in which they are put are too roughly handled. Kegs are stronger, but they also take more storage room, and, worst of all, they are very apt to give the honey a slight taint of the wood, which clean tin cans never do. In fact, the principal reason why we have abandoned the use of barrels and kegs is, we have so many times had a very fine article of honey so tainted by the barrel as to make it second or third quality. We should be glad to have bee-keepers and other commission-houses give us a little more light on this subject.]

CLOSED-END AND HOFFMAN FRAMES.

A WORD ON THE OTHER SIDE.

Friend Root:—As closed-ends, thick top-bars, and burr-combs seem to hold first place in the bee-journals at present, I feel it my duty to add a few words; first, because I fear some articles (written in good faith) are misleading; second, with so much testimony on one side, and little or nothing on the other, it may lead some to discard their convenient, well-proportioned frame for something they know little about. Of course, one who has had experience in bee culture will not be easily lead into changes; but the beginner, who is reading, and being guided by the teachings of the various bee-journals, often makes changes which his means will hardly allow.

I have had six years' experience with closed-end or one-half-closed-end frames (the original Hoffman frame), and have worked them nearly all out of the apiary. When I say six years, I mean I used the Hoffman frame exclusively that length of time. Exact spacing, by using a fixed distance or closed end, will work nicely so long as we take pains to have each frame in its original place and position. But we want our frames all interchangeable; and when we can get every comb perfectly straight and true, then we can use closed ends and be well pleased with them. But in our experience, combs *will differ.* We can not keep every hive exactly level at all times, and that of necessity throws our combs a little out of true; and I find that many combs, when changed from their original position, we have to change the bee-space at the top to get the right distance in the center of the brood-nest. Now, it will often happen that our ends are left $\frac{1}{16}$ of an inch apart, or we can't get them quite close enough. If left apart, the bees immediately fill the space with bee-glue; and after repeating this a few times, the apiarist will have to stop manipulations, and scrape bee-glue before his frames will fit and give the proper bee-space.

I have used the hanging frame, made of ⅞ lumber, top, sides, and bottom; and from actual experience I am fully satisfied they are far superior to a closed end in many respects. Before discarding (four years ago) the closed ends I experimented with colonies of equal strength and working qualities; also with the two frames in the same colony; and every time the hanging frame gave the best satisfaction. There are many reasons I might write why I favor the hanging frames, small in themselves; but bee-keeping is made up of small things; and he who overlooks the small things will come far short of being successful in this world, whether it be bee-keeping or other business matters.

In regard to burr-combs, I have used both thick and thin top-bars, and can see no difference. I am of the impression that burr-combs are due largely to the race of bees, and the right bee-space above the frames. I find with me that ¼ inch, scant, is about right, and with that bee-space I should prefer a frame just heavy enough to prevent sagging, as I like to get the sections just as near the brood-nest as possible.

A. E. Woodward.

Grooms Corners, N. Y., Jan. 12.

[I am glad to get your testimony, friend W.—not that it proves that the closed-end or Hoffman frames are impractical for the *majority* of bee-keepers, but because it shows that there are *some* bee-keepers like yourself, who, after trying them, would discard them for the hanging frames. Bee-men can not all be induced to use the same kind of frame, by a long way; and, if my judgment is worth any thing, I should say that neither the loose hanging nor fixed-distance frame will be used exclusively. Both will be used, and have their firm adherents. But your testimony, friend W., is diametrically opposed to that of a good many bee-keepers whom I know—those who have tested both the fixed and the unfixed, and have finally decided most emphatically in favor of fixed frames. I feel pretty sure that the difficulty you speak of, about combs not being interchangeable, must be due to some fault in your manipulation. Capt. Hetherington, Mr. Elwood, and Mr. Julius Hoffman, do not experience this trouble—to say nothing of the hosts of the smaller following. While I watched Mr. Elwood manipulate his frames, he alternated them as much as you and I would the loose hanging frames; and, remember that these gentlemen own something like an aggregate of 5000 colonies. There is a great deal in getting used to a thing. Although your article above shows that you have had considerable experience with fixed distances, there is possibly some factor that does not appear on the surface, and yet nevertheless is the cause of your trouble. Perhaps Mr. Elwood will enlighten us on this point a little, later on.

In regard to thick and thin top-bars, your experience is also diametrically opposite to our own, as well as to that of a good many others who have sent in reports. It is one of the *strange* things in bee culture, why good competent bee-keepers should have experiences so different, and it is not much wonder that it does confuse beginners. Mr. A. says he has had such and such experiences with a certain device. Mr. B. has had just the opposite. But that does not prove that the article in question is valueless.

You are correct about the right bee-space. It should be a scant quarter inch, and, by the by, this *may* explain why you say you see no difference between the thick and thin top-bars. This small bee-space, I know from experience and observation, makes a good deal of difference in the matter of burr-combs.] E. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHY THE QUEENS WERE CARRIED OUT.

I introduced two queens into hives in October. In about a month after they had been introduced I found them both in front of their respective hives, almost lifeless. They were straight and plump, but their bodies were not distended. The colonies had natural stores and granulated-sugar syrup. The queens were reared elsewhere. What could have been the trouble? J. C. Atkinson.

Nelsonville, O., Nov. 28.

[No one can give the reason, any more than to conjecture; but my impression is, there was a queen already in the hive when you introduced one; and if you are only a novice, friend A., I should not wonder if they were not queens at all, but simply bees with elongated bodies. I once mailed such a bee to father Langstroth, saying that I had lost my twenty-dollar queen. But I was greatly rejoiced when he wrote back that it was not a queen at all, but only the body of a distended bee. I found it outside of the hive, as you did, and warmed it up, and it came to life a little.]

SECTIONS SOLD BY THE PIECE; WIDE AND THICK TOP-BARS A SUCCESS.

I have been back East through York State and Connecticut. I have read about selling sections of honey by the piece. Now I will tell you about what I know. I sent 823 lbs. to Connecticut. I had one crate of 15 boxes, of 12 lbs. each. It was hard work to get rid of them, as they wanted about 10 lbs. to 12 sections. I did not find one man that sold honey by net weight, always by the section.

I have tried seven different kinds of brood-frames. The best I have tried is with top-bars 1⅛ in. wide and ⅞ inch thick. They give the best results, for there are no burr-combs between frames. I space just 1⅜ inches from center to center. I will take wide and thick top-bars every time. A. N. Whitlock.

Dover, Mich., Dec. 15.

WINTERING IN AN OUTER CASE A SUCCESS; A DEAD-AIR SPACE SATISFACTORY.

I never could see why burlap or cushions were better above the brood-nest than a board that the bees could seal down air-tight, or why sawdust-packed hives were better than double-walled hives with a dead-air space. I winter on summer stands, and still have five different hives for experiment. The hive I principally use is the Heddon (for want of a better) with an outer case of ⅞ lumber. In these hives I rarely lose a colony (I lost one out of twenty in three years). If I should happen to loosen the cover after being glued, I use a paste to make it tight. My bees breed up fast in the spring, and are ready for business when the honey-flow comes, and I always get the best-ripened honey from those hives, selling my honey as fast as taken from the hives, in my town.

In experimenting with double-walled hives, a hive with a one-inch dead-air space all around it is warmer inside than a hive with space packed. The same is cooler in summer. What has become of the ventilation theory? I settled this theory in a few words. Why do bees seal down the cover air-tight if they should have ventilation? J. T. FLETCHER.

Clarion, Pa., Dec. 8.

DO DARK COMBS AFFECT THE COLOR AND QUALITY OF THE HONEY?

The question, "Do dark combs affect injuriously the color of honey they contain?" was, I believe, answered in the negative at the Keokuk convention. I believe this answer to be correct, if the honey is allowed to remain in the combs but a short time. But if allowed to remain in such combs a few months, its color and flavor are both very perceptibly impaired.

A year ago last March I warmed up and extracted several gallons of Spanish-needle honey for a neighbor from combs that he had taken out of upper stories in the fall and stored away in his house until he could get some one to extract them, as he had no extractor. The combs were not particularly dark, yet the honey was decidedly off in flavor and color when compared with my own honey gathered on the same range, but extracted as soon as well ripened. T. P. ANDREWS.

Farina, Ill., Dec. 20.

OUTSIDE SHOW, WITH THE INSIDE NOT IN KEEPING.

Friend Root:—I have seen a little of the same kind of work you speak of, putting the best on the outside, or on top. You are doubtless aware that Utah has had a good reputation for the quality of *potatoes* produced, but perhaps you are *not* aware that her good name has been greatly injured by this outside-show business. Now, I will omit names; but Mr. B. being a business man, and in the shipping business, and having a reputation for square dealing, receives numerous applications for those noted potatoes. Mr. B. goes among the (honest) farmers and tells them what he wants, and will pay so much a bushel for them, sacked and loaded on the cars. Now, probably there are half a dozen men loading a couple of cars. A few of the sacks are opened in the hurry, and fine potatoes are seen on top, and very likely five of the six men have been honest, and put just as good ones all the way through; but the sixth one is the Judas; and as the sacks are loaded promiscuously, without being marked, all must bear the blame of those small and some frozen and inferior potatoes. The shipper, of course, is held responsible; and when he has trusted too much to the honesty of the producer he "gets left." Can anybody say this is right? I for one am not sorry that friend Root is starting in to let the blame fall on the shoulders where it rightfully belongs, and not on the innocent, notwithstanding it may "cut close." And I think ninety-nine out of every hundred of your ten thousand subscribers will be willing to stand by you; for when a man or woman has labored diligently for a good reputation it is not pleasant to have it tarnished by Iscariot.

I think you are right when you think each package of honey must have its producer's name on it. Although we are a brotherhood of bee-keepers, and could, and perhaps should, work more for each other's interest than we do, still, until we become a little more perfect, we shall have to look to ourselves for a good name. In fact, that same little individual self is one that we must keep watch of, for he is probably as liable to go wrong as any one.

Taylorsville, Utah, Dec. 9. HOMER BROWN.

A KIND WORD—ROAD-MAKING, ETC.

Mr. Root:—I have read with great appreciation your article under the head of "Myself and My Neighbors," in your Dec. 15th issue. In this new country I see so much shiftless management, and hear so much complaining about railroads and banks and monopolies, and big crops and low prices, and big prices and no crops, to all of which your remarks are so pat, that I feel like responding, as I once heard an earnest listener in a Methodist church. He sat close up under the pulpit; and as the minister clinched every argument he was ready with a response, as is quite usual in that denomination. Finally, as a still more profound truth was uttered, he shouted out, "A—men! true as preaching!"

Apropos of your illustration about the way road work is done, don't you think that people who work, particularly farmers, need, above every thing, to learn and act up to the old maxim, "Whatever is worth doing at all is worth doing well"? To use a current slang expression, it makes me "tired;" yes, very tired, to see the way, when a low piece of ground is to be piked, they will go into the very lowest spot and plow deep holes on each side of the road in order to get dirt out of which to make the embankment. There is an old saying, "Let well enough alone." I could never see any sense in it; but too many interpret it in this fashion—that, when a thing is done so as to answer for the time being, it is done well enough. As you say, what a vast amount of time, labor, and money is wasted by doing things over year after year! Every one seems to be striving, not to do as well as he can, but to do as *much* as he can. The other day a man came to me and asked if I knew of a farm to rent. I suggested a place, a good farm containing eighty acres. No, that wouldn't do—there wasn't land enough. Just think, of it! only himself, no boys to help him, one team of horses, and eighty acres wasn't enough. He must have one hundred and sixty acres to scurry over. Yes, indeed it does make one "tired." HORACE N. JONES.

Clay Center, Neb., Dec. 22.

BOARDS OR QUILTS: WHICH ARE BEST TO COVER SUPERS?

Until the present season I have always used quilts placed directly on top of the sections in the super. More and more I became dissatisfied with them, because of the great masses of propolis put between the sections and quilt. Sometimes the quilt was shoved up enough to let the bees pass over the sections, and the whole top of the sections was smeared with glue.

This season I handled 125 colonies in two apiaries, run for comb honey only, and all in ten-frame Simplicity hives, slatted honey-board, and Miller T super. On about half the colonies we used the quilt to cover the supers. The rest we covered with board covers, just a plain ⅜ board cleated on top to prevent warping.

With the super holding 28 sections we have on top 32 openings, every one of which will be lined with propolis, making 16 ft. of line propolized; but with the board we have about 12 ft. of line propolized; viz., the outline of the super, 5 lines across between row and row, and row and super, and a little at the corners of the sections, where they touch the super on the side of the super. The board being rigid, it is simply glued down; but the quilt, being flexible, is crowded up, consequently receives two to four times as much glue, and is stuck right on top of the sections, which, when scraped off, have a streaked, motley appearance, while those covered with a board will be somewhat discolored all over the top, and have just a small line of glue on each upper corner, to knock off. The whole top of the section being slightly discolored, it looks better than the spotted one. The heat will rise to the board, and equalize much better than with quilt.

COMB HONEY SOILED BY PROPOLIS.

We seldom had less than two supers on each hive, and sometimes four and five, and had frequent occasion to interchange, putting the top super down, or else putting a new one on top of those already on. Now, those, being covered with quilts, when placed below, must have those great piles of propolis scraped off, which takes up much valuable time, and, when done, will have to be smoothed down by the bees. This extra glue that the bees smooth off must go somewhere, and much of it goes into the cappings of the honey near its location in the super. Some will think it is only travel-stains. Even if it were, we don't want so much glue tramped in our nice white combs. But careful observation, in many instances, showed great spats of this extra glue placed right on the combs.

Fort Collins, Col., Dec. 24. R. C. Aikin.

SPRING DWINDLING—A GOOD SUGGESTION AS TO ITS CAUSE.

I have not seen the subject of spring dwindling explained as it has occurred under my observations, which are these: Once in three or four years we have a late flow of honey, mostly from aster; and the bees that should (and, under ordinary circumstances, would) live until others appeared on the stage in the spring turn out and work early and late after the weather has become so cool that one is surprised to see them out, in consequence of which many die through the winter, whether wintered in the cellar or outdoors; and when commencing work in the spring they die off like "old sheep" before others can be raised to take their places. The result, many know to their sorrow. Well, what is the remedy? I wish I knew. Feeding to keep up brood-rearing after the close of the surplus season would be all wrong when the late honey failed to come. Some stocks with young queens keep up brood-rearing late, and get through all right, when, if the late flow had not come, they would require heavy feeding sometimes, while the others would be in much the best shape.

Bartlett, O., Dec. 15. E. S. Fowler.

[It is well known that spring dwindling does not come every spring; and as it appears irregularly, your suggestion is a good one—as good as any that have been given. Has any one else observed that a late honey-flow is apt to be followed by more or less spring dwindling?]

AN EXPERIMENT WITH HAIR FOR PACKING.

I am trying an experiment this winter with four chaff cushions filled with hair, such as is used for plastering. Our folks run a tannery, and they are troubled with bumble-bees building nests in the hair-house, and I think honey-bees will not be offended if we fill their side-walls with good dry hair. Of course, there is some lime in it, but that will absorb some of the moisture from the hive, and become dry again without rotting, as chaff will. I will send you free samples, large enough so you can fill four side cushions. We use the Falcon chaff hives.

Mrs. J. W. Brodie.

Warsaw, N. Y., Dec. 1.

DOUBLE-WALLED AHEAD OF SINGLE-WALLED HIVES; THICK TOP-BARS A SUCCESS.

We got some honey from all of our chaff hives, but there was not a pound of surplus from the single-walled hives. We used heavy top-bars this year, $\frac{7}{8}$x$1\frac{1}{16}$, and there was not a spoonful of wax on the top of about 200. I like them much better than the light ones. We used the T super over them without any honey-board—put a strip under each end of the super, and there was no wax nor brace-combs to bother.

F. L. Hankins.

Blandinsville, Ill., Dec. 8.

A GOOD REPORT FROM THE HOFFMAN FRAME.

The past season was entirely too wet to be very favorable to the bee-keepers of New Jersey. My honey crop this year is slightly over 1600 lbs., all but 150 of which is comb, from 60 colonies, spring count. Clover sold at 17 cts., and buckwheat at 15—better prices than for some years past.

In speaking of the Hoffman frame, when, in 1885, I bought the apiary of my brother, John B. Case, now of Port Orange, Fla., he was using both kinds of frames, the Hoffman for experiment, with gratifying results. Now, if any one will use both styles, Hoffman and common, not only in the same yard, but in the same hive, as I have done, I think he will very soon discard all but the Hoffman. They can be handled just as rapidly as the common, and spaced in a flash. A good way to test the matter is to put, in a hive, half of each kind of frames. There are but few other kinds of frames used in this section at present, and they are imported from New York, Ohio, and other foreign parts. I should almost as soon think of going back to the old box hive as to give up the Hoffman frame.

There is a hive manufactured not more than a thousand miles from here, in which the frames are permanently spaced; i. e., nailed in fast and tight; and some declare, after using them, that they can not see much difference between a frame hive and a box hive. Strange, isn't it? W. W. Case.

Baptisttown, N. J., Dec. 29.

[Thanks for your very valuable testimony. Comparative tests are what we want. In only one instance that I know of was the Hoffman frame adopted and afterward discarded. In this case it was not for the hanging frames, but for a frame still more fixed—the closed-end Quinby. I feel morally certain, that, where a fair comparative test is made, like the one referred to above, the Hoffman will come out ahead in nine cases out of ten. The man who shuts his eyes to these improvements, and won't try them, is the one who will be the loser in the race, in the long run.] E. R.

WHY L. FRAMES ARE PUT LENGTHWISE OF THE HIVE.

Friend Root:—Why do you and most of the bee-men, so to speak, advise the frames being hung lengthwise instead of across the hive? I ask for information. It can't be so warm in winter, and I should think they would be more difficult to handle. C. H. Peabody.

Providence, R. I., Dec. 18.

[This matter has been pretty thoroughly discussed in times past, friend P. The L. frame is always used running from front to rear, or pretty nearly always. Where the entrance is the whole length of the front, a bee coming in from the field can go between any two frames in the hive, without passing over any. In very hot weather, the air coming in at the entrance can also go between all of the combs. In handling the combs, the operator naturally stands at one side or the other of the hive, and never in front, so as to cut off bees from getting in any of the entrances. If we wish to divide the hive by a division-board, so as to make two or more colonies for queen-rearing, the entrance is readily divided, without the necessity of cutting new entrances in any of the hives. Other reasons may, perhaps, be given. Very likely there are other reasons besides the one you mention for having the frames go crosswise.]

OBJECTIONS TO BENT-POINT WIRE NAILS FOR WIRING.

Last season I tried the wire nails in wiring brood-frames. I don't like the plan of bending the points, as they do not make a neat job, and it takes considerable time also. I have a plan that seems good if we can get the nails made that way. It is, one-inch wire nails with eyes punched through about ¼ or ⅜ inch back from the points. Iron wire nails would do, or nails somewhat flat; or, how would nails with beards cut a little way back from the point do? What would the first-named cost per lb.?

Nye, Ind., Dec. 29. C. A. Bunch.

[Friend B., the only way to get a nail with an eye in it would be to get up the machinery and make them. The nail companies would not take it unless an immense order were given them. There is no nail in the market with a barb long enough to catch the wire securely. A barb would be much handier than an eye, for the wire could be hooked over it. I am inclined to think that hooking over the point would be the cheapest way at present. If you use a very slender nail, and have the right kind of round-nose pliers, it need not take very much time.]

CLOSE SPACING A DECIDED ADVANTAGE.

I have read Mr. Boardman's suggestions in December 1st Gleanings. Our hives are the same kind as those used by Mr. B. Three years ago next spring I put an extra frame in the few hives we then had, and have continued to do so. Our bees have done splendidly, wintered well, and we are scarcely troubled with burr-combs. I think Mr. B. will find the extra frame quite a help to him. We had a good yield of surplus honey the past season, and the hives were very heavy when we put them in the cellar for winter, about Dec. 1st.

JAPANESE BUCKWHEAT—50 BUSHELS PER ACRE.

In regard to Japanese buckwheat, here the past season it has shown its superiority over the old black variety. While many pieces of the black were badly blasted by three or four hot windy days, the Japanese was scarcely affected at all. We had fifty bushels to the acre. Several of our neighbors who came to look at it said it was the nicest piece they ever saw. B. T. Scothan.

Rogersville, Mich., Dec. 24.

[These are the kind of facts we like to get. Close spacing has only to be carefully tried to prove its advantages.]

THE MODIFIED HOFFMAN FRAME—A GOOD REPORT OF IT.

I acted at once on Ernest's suggestion (page 780), and changed the hanging frames of one hive into Hoffman frames. It did not seem to work right. I could not lift even two frames at once, so I pulled the spacers off and cut the top ends square, as on page 425; nailed them on, and they did better. I can lift three or four frames easily, and they work nicely so far. I also found there has to be a spacer nailed in one corner of the hive, and one on one corner of the follower.

My bees have done well this fall, and are in good fix for winter. The spruce pine has been in bloom over a month, and the bees are working on it every day. They are bringing great loads of pollen and some honey. I know they get pollen from the pine bloom; but do they get the honey from it too? J. H. Hill.

Venice, Manatee Co., Fla., Dec. 27.

[If you like extemporized Hoffman frames—that is, those made from common frames, you certainly will like the Hoffman made exactly as the inventor recommends. The regular Hoffmans are easier and more satisfactory than something fixed over.]

WHAT FRAME TO ADOPT—THE VAN DEUSEN OR HOFFMAN.

I have decided to adopt a fixed frame, and can not decide between the Van Deusen reversible and Hoffman. I suppose you have thoroughly tested both by this time, and I should like to know your preference. I think I should prefer the Hoffman if it were reversible. Do you think this much advantage, or enough to adopt the Van Deusen in preference to the Hoffman, regardless of cost? C. E. Layman.

Troutville, Va., Dec. 11.

[Both frames have their points of advantage. For a fixed frame we prefer the Hoffman. If you want the reversing feature this will not do, and you had better select the Van Deusen. The safer way is to try a few of each.]

JAPANESE BUCKWHEAT TOO LARGE TO GO THROUGH ORDINARY SIEVES.

What will you give for 30 bushels of Japanese buckwheat? The miller here thinks he can not well grind it, on account of its size.

Miss Libbie Williams.

Delavan, Wis., Dec. 24.

[The above and similar letters indicate unmistakably that the Japanese buckwheat is larger than the common. Tell your miller, that, if he wants to be up with the times, he should get a sieve that would accommodate the new buckwheat.]

HONEY LIKE WET SUGAR.

Our bees in this settlement this fall made honey like wet sugar. What is the cause? It never was so before. We have had the driest summer and fall we ever had.

Aumsville, Or., Dec. 12. W. W. Brooks.

[Friend B., such honey has been several times reported, and it almost always comes during a dry season or fall. We have had several reports from candied honey-dew from your locality—the kind that makes little balls of candy on the twigs of the fir-trees. As this candies on the trees, it would be nothing strange to see it candied in the combs.]

SPANISH NEEDLE.

I was visiting in Iowa during August and September, and I saw the large flowering Spanish needle for the first time. It is different from what we have here. Some of the flowers are two inches across the petals, and of a beautiful yellow color. I saw the bees at work on them. They are a different kind from what we have in Ohio. W. S. Imlay.

Zanesville, O., Dec. 8.

[Friend I., we are glad of what you tell us. One of the first things for bee-keepers to do during this coming season is to work up this great field along the Illinois and Mississippi Rivers.]

SUCCESS BY THE A B C OF BEE CULTURE.

I must tell you how well I succeeded with my bees with the help of your A B C book. Last fall I bought three ordinary hives, and did not know a queen from a drone. I studied the A B C all winter and this summer. I increased my bees to 16 good hives, and extracted 40 lbs. of honey, besides learning a great deal that I wouldn't take money for. I have bought enough to increase my number to 30 hives, and expect to do wonders next year in the bee-business. We have thousands of acres of alfalfa for pasturage; and although we live at an altitude of 7500 feet, our bees flourish.

Mancos, Colo., Nov. 10. **MRS. A. J. BARBER.**

THE NEW DOVETAILED HIVE WITH A FOLLOWER AND CLOSED-END FRAMES JUST THE THING FOR OREGON.

In the Dovetailed hive you have struck a keynote in adding the "follower and wedge" to key up the frames and sections. This keyboard (as I have called it) and wedge have been in use in my apiary for ten years, and are considered indispensable. I have used a section-holder during this time, made by nailing these same "inset slats" to ¼ x ½-inch strips, the same resting on tins as in the dovetailed super, but without the end pieces. This gives a vacant space of an inch or so at one end, which gives easy room for handling sections, and the follower holds all snug.

The Dovetailed hive, if wide enough to admit of, say, a half-inch division-board on each side, with closed-end frames, virtually making a double-walled hive, is just the hive for our Oregon and Washington climate, where it is never extremely cold, but where we have dampness to contend with. The heat from the bees will drive the moisture through this half-inch wall to the open-air space, where it will condense and run down out of the hive, leaving the bees dry—a most favorable condition for wintering successfully. **E. S. BROOKS.**

Silverton, Ore., Jan. 13.

FAIR RENTAL FOR AN OUT-APIARY.

As I have more bees than I think I should keep at home, I intend starting an out-apiary this season; and having had no experience myself, and as there is no one here to consult, I write to ask you what is customary or right compensation to pay the parties owning location, as rent, etc., for privilege. In other words, what arrangement is usual between the bee-keeper and the owner of the land?

Florence, Kan., Jan. 5. **T. J. CONRY.**

[Rental for grounds on which out-apiaries stand is usually rated at $10.00 per year. It is just as you can agree. A good many pay no rent: they make gifts of honey.]

MORE ABOUT THE NEW IDEA.

Friend Root:—I see, by the way you headed my article on page 25, that my New Idea was not well understood by you. It is not a wire-cloth cage in front of the hive, for wire is hard for bees to fly against—also a conductor of caloric, therefore not good, besides too expensive and cumbersome; neither is it mosquito-bar, as might be inferred, as the feet of the bees will entangle in it.

My bees are doing grandly under this treatment, and are less restless than those in the dark cellar. Among those placed upstairs, under protection of the new idea, was a colony, robbed on the last of September. I feed them in the New Idea, and every two or three days they have a grand festival and carry some stores into the hive. They well know where to find their rations; but it is wonderful how they assemble to enjoy their festivities.

During the month and twenty days that I have had these colonies upstairs, the dwindle is next to nothing, while those in the cellar can be gathered up by the quart. From present indications I am confident that the New Idea solves the enigma of wintering without loss; and if success attends until they reach the summer stand, upstairs will supplant down cellar, universally, in less than one decade.

The character of this device is a riddle not easy to guess, and I retain the knowledge to myself until success attends it, at which time I will send you a sample one, whereby the fraternity will be made to wonder at its simplicity.

Nirvana, Mich., Jan. 19. **F. D. LACY.**

AGAINST INCORPORATING THE BEE-KEEPERS' UNION WITH THE N. A. B. K. A.

On page 894, Dec. 15, Dr. Miller makes a proposition to merge the N. A. B. K. A. into the Bee-keepers' Union. I think that should not be done without the consent of a majority of the members of the Union; and as a member I wish to hand in "no" to the plan. I do not see where it would benefit the Union in any way, so I object to it. **E. D. HOWELL.**

New Hampton, N. Y., Dec. 15.

REPORT OF THE YEAR.

In the spring of 1889 we set out 80 stands of bees. During the year we increased the number to 200, which were all alive in the spring of 1890, but some of them were weak. There were 185 when the fruit-trees blossomed, and we were highly pleased with the prospect for the last year. We received over 7000 lbs. of honey from 80 swarms. For 1890 we received only about 700 lbs., and have only about 175 stands left. **R. H. RANDALL.**

Big Rock, Iowa, Dec. 20.

CALIFORNIA HONEY IN OLD OIL-CANS.

The honey is very rich, but I don't like it in oil-cans, for it spoils the flavor, for it tastes so strongly of the oil. I would rather pay a cent a pound more to have it in new cans.

FREDERICK HUND.

Casco, St. Clair Co., Mich., Nov. 30.

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150 LBS. OF HONEY FROM THE BEST COLONY.

My bees have done fairly well this summer, my best colony giving 150 lbs. extracted honey. I had 12 colonies, spring count; increased to 22; sold one, and took 400 lbs. comb and 400 lbs. extracted honey from them, and left plenty for winter stores. **A. E. SNELGROVE.**

Camborne, Ont., Can., Dec. 13.

ALFALFA-ROOTS—HOW DEEP DO THEY GO?

On page 401, A B C, you intimate that the cut of the alfalfa-root is probably exaggerated. From an extended visit to Kern Co., Cal., this season, I can testify that the statement, that the roots reach a depth of 20 feet, is correct; and for feed for stock, it has no equal.

Maroa, Ill., Dec. 4. **F. D. LOWE.**

A REMEDY FOR BLACK ANTS.

My hives were covered with ants, and now I don't see them at all. The bottoms of my chaff hives are painted with coal tar. It cost 10 cents a gallon. One quart warmed and spread on quite thick, with a brush-broom, will paint the bottoms of 10 hives. The mice do not trouble them either. It is cheaper than tarred paper; besides, it preserves the wood. **R. A. TOBEY.**

Caton, N. Y., Jan. 6.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 177. 1. *When a cellar gets too cold, is artificial heat, such as that from a stove in the cellar, injurious? 2. If you think it advisable to use a stove, would you try to keep a steady heat, or warm up by spells?*

Warm up by spells.
Illinois. N. W. C. MRS. L. HARRISON.

I will let the cellar men answer this.
Wisconsin. S. W. E. FRANCE.

1. No. 2. Bring the temperature up to 40, or about, and then close the cellar and try to keep it at that.
Illinois. N. W. DADANT & SON.

1. Not if you are careful. 2. A steady heat, with facilities for turning it off in warm spells, would probably be best.
New York. C. P. H. ELWOOD.

1. I think that artificial heat may be used to advantage. 2. Warm up by spells, and then let the bees become quiet.
Ohio. N. W. H. R. BOARDMAN.

It is claimed by some, I believe, that the temperature of a bee-cellar should be between 45 and 50. The steadier your temperature, the better.
Ohio. S. W. C. F. MUTH.

1. No, but I'd try hard not to have it get too cold. 2. I would keep an even temperature; and a cellar that is fit to winter bees in may easily be kept warm enough with an oil-stove.
Ohio. N. W. A. B. MASON.

1. No. At least, it won't do as much harm as too much cold. 2. I don't know. I suspect it doesn't make much difference. If you could keep them just right, the steady is probably better. The occasional is easier.
Illinois. N. C. C. MILLER.

1. The temperature in a cellar should be maintained at 45°, as nearly as possible. I should prefer a good oil-lamp, rather than a stove, to warm the cellar, by coloring the chimney with smoke, or using a tin chimney, in order to exclude the light. 2. Keep up the heat, *a steady heat.*
Vermont. N. W. A. E. MANUM.

Not if very carefully managed; but great caution is imperative. I should prefer a uniform heat, so as to keep the cellar just about right; but I have no hesitation, as the temperature goes down toward freezing, in putting in a fire; but I carefully watch, and remove as soon as the temperature gets to 45°, or even up to 50°, if the weather is very cold.
Michigan. C. A. J. COOK.

From my practice I can readily answer that stove heat is not injurious; and the best way to do is to warm up by spells, unless you have a very large cellar, say under a building as large as a store. I divided my cellar with a board partition, putting the bees in the big part and the stove in the small one. The stove heat radiates through the board partition after making the little room and stone wall around it very hot. In this way I avoid excessive immediate heating of the bees.
Michigan. S. W. JAMES HEDDON.

My bee-cave needs no artificial heat. If I had a cellar which was too cold I would experiment with artificial heat to see if I could better it thereby. So much depends on the *man*, and his thorough or shiftless ways, that what might be a success with one might prove only a failure with others.
New York. C. G. M. DOOLITTLE.

1. While I have never tried warming a bee-cellar by artificial heat, I feel very sure it would do no harm, provided proper care were taken not to excite the bees by too much noise or light in caring for the fire; or if a smoking stove or an uneven temperature were guarded against. 1. By all means keep a steady, uniform heat when heat is needed.
Illinois. N. C. J. A. GREEN.

If a cellar had the habit of getting down to the freezing-point, I would first try to remedy the defect in the cellar. If I could not do this I would partition off an ante-room, and put in a coal-stove. The ante-room, though small, would shield the bees from direct heat and light, and secure an even diffusion of heat. I would keep a steady heat during the cold term, or during zero weather. The rise and fall of temperature would cause uneasiness.
New York. E. RAMBLER.

I have had very little experience with indoor wintering. Those who have tried it, I believe, mostly say artificial heat won't work. Not having tried it, it is easy for me to suspect it might be made to work if one would get at it just right. An uneasy owner might easily imagine his bees were suffering greatly from cold when a quiet letting-alone would bring them through all right. 2. Nothing succeeds like success; and nothing fails so miserably as failure. I suspect success could be had on either line; and failure on either line, I am pretty sure, could be had.
Ohio. N. W. E. E. HASTY.

1. Hard to tell. It has not been satisfactory with me. The trouble is to get the heat evenly distributed and keep it so. To do this it would require something in the furnace, steam, or hot-water plan of heating, and would require more of an outlay for fixtures than one would wish to incur, and more skill and patience to tend the plant than most of us possess. 2. I have a stove in my bee-cellar, and I have found it handy to dry out moisture before putting bees in, and to heat up honey to feed or extract where some is left late in the fall. What we should aim at in the construction of cellars is to construct them so that the heat of the earth and bees will keep them warm enough without resorting to fire heat.
Wisconsin. S. W. S. I. FREEBORN.

[I am glad to see so much of an agreement in regard to the above. In our locality—at least, as our winters have been for a good many years back—I feel certain that it does not pay to winter bees in cellars, all things considered; and if I lived where it is cold enough to warrant cellar wintering, I think I should follow friend Freeborn's concluding remark. In fact, I did it years ago, and brought them out in good condition. Now, then, comes the question, "Would they not have come out in good condition had they been left entirely alone?" I rather think they would, in the majority of cases. There are times, however, say when the bees have poor stores to winter on, when, by warming up the cellar occasionally by the aid of a stove, we get them through until they can be put out in the spring, where they would not have come through otherwise.]

MYSELF AND MY NEIGHBORS.

Your adversary the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5: 8.

We read in the Holy Scriptures, that "the fool saith in his heart, there is no God;" and I believe that all mankind, as a rule, assent to this proposition. It is only the foolish, or those who are stubborn and contrary, who absolutely *deny* the existence of any overruling power; and the attitude of the leading minds of the present age, if I am correct, is toward a more general belief in God than they ever have had before in any age. I believe the tendency is greater, also, to respect and reverence the Maker of all things in a way the world has never done before. It is true, there are those who take God's name in vain; and one is often pained to hear men of culture and learning use profane oaths. But I believe a reform is coming, and that speedily, right along in this line. Well, I have been thinking that it is not only wise to accept the Bible statement in regard to God, but that it is also wise and well for us to recognize and believe in one who "goes about as a roaring lion, seeking whom he may devour." The world is fully aroused in regard to dangers of different kinds that threaten humanity. Societies without number array themselves against intemperance; and some who declare they do not believe in the Scriptures at all are still energetic workers in the cause. It seems to me, however, through it all we should recognize that *sin* is really the one thing to fight against. The Bible is peculiar, inasmuch as it lumps all sorts of evil and iniquity under the one term—*sin*—and plainly designates Satan himself as the *father* of sin. I believe it is a good thing to recognize Satan as *the* adversary. I believe it is a good thing to recognize at once, when some friend or neighbor has gone to the bad, that he has come under the dominion of Satan. Like the rest of you I often hear certain ones vehemently denounced for their vile conduct. Sometimes I try to check those harsh words that come forth; and I then suggest:

"My friend, are you not *sorry* for this neighbor of ours?"

"Sorry? Why, no; I am not a bit sorry for him. He did it of his own accord with his eyes open."

"But he is under the power of Satan—he is not himself. He has been lead astray, and has yielded. While he may be greatly to blame, in considering how we may do him most good is it not best to recognize that it is *Satan's* work?"

"Satan! fiddlesticks! When one deliberately acts as he does, I do not think it is worth while to waste pity on him."

Now, these friends who reject my way of putting it (that it is just simply Satan's work), it seems to me are not in an attitude to do the most good; and we as *Christian people* often entertain this wrong attitude. Satan gets hold of somebody else, and leads him astray. In our indignation with the brother or sister, we let a wrong spirit get into *our* hearts, and Satan gets hold of us all if we do not look out. If he can get us to fighting intemperance or gambling, or lying and theft, he is much better satisfied than when he finds out that we recognize the *cloven hoof* in the whole matter, and denounce *him* as the father and author of *all* sin.

Only a few hours ago a good friend of mine, and a devoted Christian, dictated an answer to some one who showed a wrong spirit in discussing accounts. I carried the letter back to her and said:

"You know this good friend of ours who writes this letter, do you not?"

She assented.

"Well, you do not wish this answer sent to her, do you?"

"But indeed I do. It is just exactly what she *deserves*."

"But is it the kind of answer that will do her the most good, and be most likely to get her out of the wrong position she seems to have taken?"

"No, Mr. Root," hesitatingly, "I do not suppose it is. I *do* know that the best way in answering anybody is to strive to use such words as will do them the most good."

An answer was then dictated in quite a different spirit.

Now, instead of blaming and censuring these neighbors of ours when they do wrong things, will it not be far better to lay at least a *part* of the blame on Satan, the author of all mischief? And if we do this, will it not be easier for us to make such a reply or take such action as will be most likely to bring them to Christ Jesus? for is it not true that our greatest work here on earth—the most important work that any of us have to do—is to get our friends and neighbors out from under the dominion and control of the evil one, and to bring them, by gentle words and mild measures, under the power of Christ Jesus, "the Lamb of God that taketh away the sin of the world?"

There is one special line of sin in which Satan is constantly at work. We seldom hear much of it, however, until it bursts on us and startles community with the suddenness of a thunderclap or an earthquake; and yet the steps that Satan takes to bring these victims to ruin and despair are very simple, and of such a nature that one might almost be excused for not thinking or even suspecting that a cloven hoof was anywhere concealed. It is a matter about which we seldom hear much said, or of which much gets into print, unless it is among the sensational news of the newspapers. It has often been said, that we, as a body of bee-keepers, are especially upright and moral in character and standing. While this is true, I feel that it were well that a danger-signal were raised aloft now and then, especially since, within a short time, two prominent brothers have fallen. When the papers came out with the sad story of friend Betsinger, I thought best to have as little said about the matter as possible. But our silence in the matter has troubled me some ever since. It troubled me because he was a prominent official in one of our universally recognized orthodox churches. In fact, his awful crime became possible because he was a *deacon* in the church. Now, by keeping silence we give scoffers good grounds for saying *because* he was a member of the church it was hushed up. I do not believe that any thing should ever be hushed up—that is, any thing in this line—because the guilty person is a church-member. On the contrary, church-members should be made to feel and to pay the awful penalty and consequence of taking such a fearful step across the wide gulf between Christ Jesus and the evil one. If anybody thinks that, because he is a church-member, or even a member of parliament, he can overstep God's holy command, the sooner he discovers his mistake the better; and I rejoice that the world at large decided quickly on the proper thing to do in the case of Parnell. Our friend Betsinger went to an orphan-asylum, and became constituted guardian of a poor homeless, friendless, and defenseless child, because he *was* a deacon in the church; and the first offense was long kept from an unsuspecting public, simply because he was a professor of religion, and he was allowed to go on and *repeat* a thing that fairly makes one shiver to think of. No, all this, friends, was simply the work of the adversary. Satan, little by little, got hold of him. Perhaps he may have struggled, and I think there is no question but that he did, for months and may be years, as the poor fly fights and struggles in the spider's web. Probably no human being knew of those struggles. I have told you before, that I think it is exceedingly bad for us to try to fight evil *alone*. Go to your wife; go to your pastor; go to your best friend, and tell him that Satan is striving hard for your soul. Ask them to pray for you or with you, and just see how the scales will fall from your eyes. When an intemperate man can confide his struggles to some good Christian friend, he is, for the time being, freed from the toils of the spoiler.

The second sad case is of recent occurrence. The following from the Boston *Herald* tells the sad story from Lewiston, Me., dated Dec. 30:

> The neighboring village of Mechanic Falls is excited over an alleged elopement. For years a neat sign bearing the inscription, "Home of the Honey Bee," has pointed out the entrance to a cozy cottage, which has of late been transformed into somewhat of a hornet's nest. It is the home of J. B. Mason, editor of the *Bee-Keepers' Advance*, the only paper in Maine devoted exclusively to apiarian interests.
>
> Mr. Mason is 53 years of age, and has been prominently connected with the Second Advent Church since his youth. He has four sons, two of whom are ship carpenters in South Boston, and two small boys at home; also a daughter, Mrs. Lizzie Bray, a widow who is stopping at home on a visit from Boston. Mrs. Mason is a genial woman, and their home has been a pleasant one, at least until within six months ago. Then it was that Charles H. Cotton, wife, and two small children went to board with the Mason family. From that time Mr. Cotton alleges his wife and Mr. Mason were too intimate.
>
> About five weeks ago Mr. Mason and his wife went to Boston to visit their sons, and Cotton claims that his wife received a letter from Mason, asking her to meet him at the Boston & Maine depot in Boston. On the afternoon of Dec. 22 Mrs. Cotton took her little girl and started for South Paris, telling her husband she was going to visit her sister. Mr. Cotton, being suspicious, harnessed up his team and followed her, only to learn that she had started toward Boston on the express train.
>
> The next afternoon, he says, Mason left Boston, and has been heard from since only by a letter postmarked White River Junction, Vt., addressed to Mrs. Mason in Boston, in which he said she might have his bee business, but that he would never return until he could pay his debts. Mrs. Mason is now in Boston.

The *Bee-Keepers' Advance* has already absorbed five other bee-papers, the last one being the *Bee-Keepers' Magazine*, which was long published in New York. Notwithstanding these consolidations, the paper does not seem to have prospered very well. We have been in frequent communication with friend Mason, and have felt more or less acquainted. He, too, was a church-member, and had been from his youth. However, this does not necessarily reflect on our churches, even though the world may think it does, more or less. It indicates this: That a man may be a member of a church, and at the same time not be a Christian. He may be a professor, but not a possessor. The promise is, "He that *endureth* to the *end* shall be saved. In our last issue we spoke about the celestial crown that stands just over our heads, as a promised reward to those who fight the good fight and overcome all of Satan's allurements. When our poor friend decided to let go of his religion, and to bid adieu to his Savior, to desert his wife and children, to give up his standing among men, his all and every thing, he deliberately agreed to forfeit all prospect of gaining that immortal crown. There is an old hymn that reads,

Jesus, I my cross have taken,
All to leave and follow thee.

This tells us what a Christian must do to follow Christ. *All the world* and all it has to offer must be dropped and given up for Christ. The thought has been an inspiring one to many a poor soul, since old Dr. Watts gave us the hymn. It rings out like the fife and drum to the fainting soldier.

Now, just for a minute take a glimpse of the awful contrast between one who leaves all for *Christ* and one who gives up all, as did friend Mason, for——what? Yes, let us pause a minute. What did the adversary hold out to our poor misguided, infatuated, and crazy brother, to induce him to leave friends and home, and all thoughts of eternal life? He probably deliberated long and earnestly in regard to his bee-friends and his bee-journal. Perhaps he said within himself, more than once, "O my God! I can't do it! I *can't* do it! I CAN'T do it!" Perhaps he added my own little prayer, "Lord, help! Lord, help!" Some of you may ask why the Lord did not help. Alas, my friend, God has made us free agents. While life lasts we have the power of choosing. In talking a few days ago with a prominent minister, a man of large experience, we were lead to speak of a case something like the above; and he added, "Perhaps the poor man was suddenly overcome by such terrible temptation that he could not help himself."

I stopped and raised my hands in horror.

"Why, Bro. P., you are surely jesting. No man was ever yet, since the days of Adam, overtaken by a temptation that he *could not* resist. In fact, we have Bible statements to the contrary. See what Paul says:"

> There hath no temptation taken you but such as is common to man; but God is faithful, who will not suffer you to be tempted above that ye are able; but will with the temptation also make a way to escape, that ye may be able to bear it.—I. COR. 10: 13.

It is possible, perhaps, that one who has given way to Satan (as an intemperate man does) again and again, may find his will power so impaired that he can not of himself resist any more. The trouble is, in this case, away back. One who prays for help, and then does not *help himself*, must expect to be lost.

It is possible that these words I am dictating may meet the eye of friend Mason, somewhere in the wide world. As the matter now stands, what is to be done? Can any thing be done? O ye of little faith, who ask such a question! While there is life something can *always* be done. What shall he do? Why, go back home and take that guilty companion back home. Undo all the evil, so far as human power can undo it, then commence a pure, honest, upright life at the foot of the cross. Satan's greatest hold is in making his victims believe there is neither help nor remedy. Just as soon as he gets one a little way into the meshes of sin, he commences making great capital of the point that there is no turning back. A boy in his teens is now in our county jail, with the penitentiary before him. He went with a lot of other boys to a neighboring town, and bought a bottle of whisky. Under the influence of the stimulant he stole his employer's horse. Before he had got away many miles, however, the effects of the liquor wore off, and he began to suffer the terrible pangs of conscience and remorse. It would have been a very simple matter to go back and confess the whole thing to his employer. Satan persuaded him that he would surely be arrested if he did. So he turned the horse loose, and went to his home, quite a few miles away, and for three or four days he suffered as no one can suffer who has not been through the same trial. Common sense should have told him that he would certainly be arrested, unless he went to his employer and confessed at the very earliest moment. But he was crazy and foolish. So is every one foolish and crazy who gets into the toils of Satan. Almost every one who commits crime loses his good common sense, and insists that he can not stay at home and live it down. Although it is the blackest lie that Satan ever got up, poor humanity insists on listening to Satan and not to good common sense. Perhaps friend Mason would not be *allowed* to set foot again in his own home. Well, even if this be true he should make the attempt, and do the best he can to undo the mischief. It takes only a *little* while, comparatively, for the worst criminal to regain the confidence of the friends he has lost, and to regain the confidence of the whole world. I have sometimes thought that mankind are only *too* ready to forget and to forgive, and to take back every truly penitent sinner. The first requisite, however, to being thus taken back, is to own up and confess. An attempt to evade or slip out, or to make believe that the thing is not so very bad after all, does not answer. A discriminating public detects the difference between *true* penitence and make believe, with a keen and unerring judgment.

I well know, however, how *loth* those who have fallen into crime are to *believe* what I say. May God in his infinite mercy and goodness bear me out in it. May the Holy Spirit *attest* the truthfulness of what I say. There are no exceptions; there are no possible conditions that should prevent the prodigal from going back at once. Christ Jesus himself, the Lamb of God that taketh away the sin of the world, has left a standing invitation, and the promise of pardon. He says, "Come unto me, all ye that are bowed down by the burden of sin and crime. Come unto *me*, and I will give you rest. My yoke is easy, and my burden is light." Oh that the penitent sinner could know *how* light and *how* easy, compared to carrying through life those burdens that are not only a *sin* against *God* but a *crime* against *humanity!*

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

GARDENING FOR FEBRUARY.

I presume that many of our readers think there is not much to be done in the month of February; but where the heart is full of love for working in the soil, I tell you there can be found plenty to do. In the first place, you can do underdraining; and it is not often that the market-gardener has nothing to do in that line. Just across the street from where I am writing is an acre of ground newly purchased. It was bought with the view of putting on buildings, and for use as a lumber-yard; but the boys say they are not ready to use it yet, and may not for a year or more; therefore I am going to make garden on it—yes, even though the land cost me more than $3000 an acre. Of course, some may say, "Why, can you make it pay to garden in land that cost so much as that?" My reply is, "How can we afford to let ground *lie idle* that cost so much as that?" Peter Henderson tells us of gardening close to the city of New York, where they pay more than this amount *every year* for *rent*. This is close to the highway, right where there is a large amount of traffic. Some beautiful beds of cabbage, tomato, and celery plants, right where crowds of people are obliged to see them, will make a better advertisement of our plants and garden-stuff than the most expensive sign—yes, or advertisement in the papers. My friend, if you wish to sell garden-stuff, remember there is no sign or advertisement equal to the stuff itself. If you put it in front of the groceries, without care, it will be wilted in a few hours; but in neat beds, growing right by the highway, especially if you have water in abundance, as we have, you can make an advertisement that will not only be a thing of beauty and a joy for ever, but it will pay you in dollars and cents.

Well, the first thing to be done is to underdrain this piece of ground. We are putting the drains 30 inches deep, and only 20 feet apart. They are to run up and down the slope the steepest way. All the books and agricultural papers teach that the quickest way to get water off from ground is to take it straight down hill; and I guess they are right, although I have felt like objecting a good deal. I am willing that the underdrains shall go straight down hill, but the surface drains must go diagonally to the slope. The *Rural New-Yorker* recently had a series of articles, in regard to which way the furrows should run on a sidehill. I was deeply interested in those letters; and I believe the general decision was, that straight up and down the hill is not the best way for the furrows, neither is it best to have them at right angles across the slope. The furrows should have fall enough to carry off the water when there is a great excess of rain, and no more. They ought to run so as to carry the water with a very slow current off the land, when it is fully saturated. At the same time, there should be no hollows where water will stand, even for a few hours, in a low place in the furrows. If it is left this way during a very heavy rainstorm, it will be likely to break through and cut gullies across the furrows. Underdrains running at right angles, or nearly at right angles to the furrows, would be likely to take the water off unless the amount of rain were very great. I think we may learn a lesson in this matter from our friends in the far West, in the way they work for irrigation. When in California I set out a thousand strawberry-plants for my brother. I was going to set the rows up and down the slope.

"Oh, no, Ame!" said my brother Jess; "that won't do at all. The ground lies too steep. The water will run right straight down the hill, and not wet the roots of the plants at all."

As the soil was a good deal sandy and quite porous, I was inclined to think that I knew better than he did; and you ought to have seen the laugh they had at my expense, to think that a "tender-foot," who hadn't been in California two weeks, should attempt to teach them any thing about irrigation. Now, their strawberry-beds, gardens, and every thing else, are so laid out that the water has just enough fall to run slowly. If the fall is not enough, it would soak into the ground before coming to the end of the furrow; if too great, the water would run off the ground and get away without soaking down to the roots of the plants. The golden mean of fall must be arranged according to the porosity of the soil. Well, in fixing our grounds so as to avoid the disastrous effect of drenching rains, we want to have our furrows run on just the same kind of plan we have them run for irrigation. Last season we had our furrows up by the windmill run straight up and down the hill. During a very heavy rain I watched how it worked. The ground had just been cultivated and worked up fine, and the rain was needed. For an hour or two it seemed to work just right; and while the water was coming down the sides of the road like a small millrace, every particle disappeared in the *freshly worked soil*, to my great satisfaction. Finally, however, the shower closed with a tremendous dash. The underdrains and the soft loose ground took it all for a while, but finally every thing was saturated and soaked, and the water commenced going down the furrows where there was a hollow. In fifteen minutes more, dark inky streams were coming down almost every furrow, showing that the strength of the manure that had been put on so lavishly was going down to the roadside, and mingling with the torrent which was fast hastening on to Champion Brook. Not only did the dark water go down to the roadside, but several loads of my finest and richest composted soil were piled up in the ditch; so you can understand why I do not want my furrows to run straight down hill any more. With the furrows arranged so as to cross the underdrains at nearly right angles, with just a gentle slope, I believe I can avoid wash and losing the strength of my manure, unless the rain should be so excessive that the manure-water should come out at the mouth of the underdrains. Where these drains are not less than 30 inches deep, however, and a deep loose soil over them, I do not believe that the water that comes out will be colored by the manure. I am going to watch carefully, however, and see.

REDUCING THE NUMBER OF VARIETIES OF GARDEN SEEDS, ETC.

Friend Root:—In GLEANINGS for Jan. 15, a person whose name is not given, but who, for convenience' sake, I will call "Seedsman," gives the other side of the question of reducing the number of vegetables in a seed list. I can agree with him in nearly all he says; but I think that he has made a mistake as to the effect of cutting down the list or varieties in a seed catalogue. While he does not say so in so many words, yet it is plain to be seen that he thinks the object in the seedsman in not reducing the number of kinds of seeds in the list is because it will reduce his sales—that is, the object of the seedsman in cataloguing a large number of varieties is to sell the greatest amount of seed and thereby put the greatest amount of money in his own pocket. I do not think that Seedsman will dispute me in this point; and if he did, a glance at the seed catalogues would convince one of the fact. Take the point of locality, which Seedsman makes a good point, and look in the catalogues and see whether you can find it mentioned; and yet he says that "seedsmen are constantly receiving reports from different parts of the country, that certain varieties do well there." But, now, Seedsman, if you'll look at GLEANINGS for Aug. 15, 1890, you will see that A. I. Root as a *buyer* and *user* of seeds sees the profit and pleasure, the economy and satisfaction, of planting and selling fewer varieties of vegetables; and then, as a seller of seed, he is trying to have his customers do the same thing, not to increase his sales of seeds, but for the benefit of the customer. This, perhaps, may seem to some a rather unbusinesslike way of doing things; but if more business were done on this plan, the world would be better; and it may, and I sincerely hope will, largely increase the sales of seeds by Mr. Root.

I can see many reasons why a catalogue can not be cut down to the extent that has been suggested, especially for the good of the seller; but for the buyer, the reduction would be a great saving.

Now, the objection that Seedsman makes to my saying that "the new kinds and sorts are mostly made by the seedsmen in order to have a novelty to introduce." I will say that I said what I meant in that, and still hold to it, and hope that during the coming season I shall have proof of my assertion, for the garden department of the Experiment Station will make special tests of varieties, and perhaps issue a bulletin on them.

But to think that Seedsman thinks that, for a seedsman to send out a novelty that was an old thing, would hurt his reputation, makes me laugh. Why, bless your soul, that is the very way *some* of them take to make a reputation, taking for their motto the oft-repeated saying of Barnum, that "Americans like to be humbugged." If all of the seedsmen who have sent out a novelty that was *not* a novelty should have their reputation blasted, we should have a sorry set of seedsellers. And it sometimes happens that the introduction of an old thing for a novelty is not a bad thing, for some of our older varieties are overlooked, and are good things in their place; as, for instance, Henderson's bush lima bean, or Maule's Prizetaker onion. E. C. GREEN.

Columbus, O.

[Friend G., the point you make, about seedsmen not saying in their catalogues what things are suitable for certain localities, is one that ought to be emphasized. We are continually testing things that may do somewhere, but they will not for us—John Lewis Childs' Pepino, or Melon pear, for instance. Thepicture and description are exceedingly taking, especially when he says it is as easily grown as a tomato. When he first announced it I sent 50 cents at once for a plant. I gave it the very best cultivation I knew how, but never got even a blossom. The next year I tried again; and as I got a larger plant I succeeded in getting blossoms, but not a sign of fruit. And now somebody tells us that they do not bear fruit *anywhere*, except in *Florida* or some tropical climate. Notwithstanding this, the advertisement in the catalogue reads just as it has for the past three years—"As easily grown as a tomato." Last season we had a watermelon that really "astonished the natives." It was so large I could hardly carry it, and it readily found a purchaser at a good figure. When he came to cut it, however, it was so green that it hardly had *seeds* inside, and yet it was growing the whole season, and we covered it with a carpet until after one or two frosts. It was a California watermelon, and not adapted to our season and climate. I wonder how many others have paid out money for the Melon pear. Now, in regard to bringing out old and well-known varieties under a new name: Among the catalogues before us I find *seven* different names for the Shoepeg corn, and two or three different catalogues picture it and describe it as a wonderful "novelty." If the Experiment Stations will tell us just how many of the things advertised in our seed catalogues are *real* novelties, and what are old things under new names, they will save our people who love gardening, thousands of dollars. Just another point: Some new thing is so near like something well known, that nine out of ten people pronounce it exactly the same thing. Where something is brought out with a difference so very trifling from some old well-known vegetable or fruit, is it right to coax people to buy it without telling them that it is almost like the well-known so and so? The Ontario strawberry was advertised and scattered far and wide until the universal decision was that it was just our old well-known *Sharpless* under a *new name*. Our real honest and upright seedsmen not only have no objection to allowing the Experiment Stations to do this work, but many of them furnish the seeds gladly, and free of charge, and offer them to the public only after the Experiment Stations have given them their recommend. May the Lord be praised for our Experiment Stations, and for the fearless, faithful, hard-working young men who have these matters in charge.]

EDITORIAL.

I will arise and go to my father, and will say unto him, Father, I have sinned against heaven and before thee.—LUKE 15:18.

RENEWALS are coming in fast. Thanks.

EIGHT VS. TEN FRAME HIVES.

IN the Question-box of the *American Bee Journal*, page 72, the respondents vote strongly for eight-frame hives, although a few favor the ten-frame.

SUBSCRIPTION RECEIPTS.

WE never send a receipt for money received for renewals. After you send the money, watch the little label on the wrapper of your journal; and if the date has been changed a year ahead, that means that your dollar has been received. At this time of the year, however, it sometimes takes a month or more before the dates on the labels are changed.

HOPEFUL.

OUR subscription clerk informs us that several who have written, requesting GLEANINGS to stop, have repented of doing so, and asked to have it kept going again. In fact, I have noticed quite a few such letters myself. You see, there is a delicate compliment. They began to feel lonesome, even at the *prospect* of bidding adieu to an old friend. Thank you.

PREMIUMS FOR NEW SUBSCRIBERS.

ANY subscriber who will take the pains to secure a *new* name besides his own for GLEANINGS may retain 25 cents and send us 75, providing he agrees not to take any subscriptions for less than the advertised price, $1.00. If he obtains more than one name besides his own, a part may be renewals and part new names; but at least half of the names must be new.

LOOK OUT FOR THEM.

OUR friends Miller Bros., of Bluffton, Mo., wish us to caution bee-keepers in regard to the Indiana Paint and Roofing Co. We have written the above firm at two different times; and although they replied, they certainly do not seem disposed to make good their warrant on their roofing. And, by the way, is there any sort of roofing that is really reliable, and worthy of notice, unless they use shingles, slate, tin, or iron? I have seen so much dissatisfaction from all kinds of cement, paint, and paper roofing, that I confess I am a good deal incredulous.

DEATH OF MR. ALFRED NEIGHBOUR.

WE learn from the *British Bee Journal*, that Mr. Alfred Neighbour, of London, England, died on the 19th of last December, after an illness of considerable duration. Mr. Neighbour was a prominent bee-keeper in England, and the oldest of the appliance-makers. He wrote a bee-book, entitled *The Apiary*. It passed through several editions. The *B. B. J.* says, "He was extremely affable, and always ready to assist one in bee-keeping. His strict integrity caused him to be trusted by all who knew him."

THE DOVETAILING IN HIVES IN DEMAND.

WE have just received a letter from a correspondent in Utah, Mr. Willard Bishop, of Kaysville, Davis Co., to the effect that a dovetailed corner on hives will be a great advantage in their climate. He says that ordinary nailed joints are not strong enough to stand their climate; that the nails of an ordinary lap joint do draw because of the drying out and warping of the boards in the sun. The dovetailed joint is not only cheaper, but there is a demand for it in several of the Western States, where the climate is such as to make the ordinary box joint insufficient.

HONEY FROM THE SANDWICH ISLANDS.

ONE of our old acquaintances, Mr. Chauncey N. Pond, of Oberlin, O., has just returned from a visit to the Sandwich Islands, and has left with us a sample of honey from that part of the world. We expected to find something dark-colored and poor in flavor, as the honey from the islands of the sea usually is. We were agreeably surprised to find, however, that it is not only of a beautiful color but of exquisite flavor. It reminds us very strongly of alfalfa, which is so popular at our house. We should be very much pleased to have one of our subscribers in the Sandwich Islands tell us more about it, and of the progress of apiculture as it is on those islands.

HOW TO WINTER BEES.

ON page 36 of our catalogue, for the benefit of beginners and others we have given the very latest there is in regard to wintering, in doors and out; how to pack in chaff on summer stands; how to carry bees into the cellar, and how to stack them up there. In fact, they are the same instructions as are given in the A B C book, boiled down. We have also given instructions on how to feed and how to do a great many other things. Our new catalogue is not only a price list and description of implements, but it contains a good deal of instruction for the benefit of bee-keepers. It will be cheerfully sent on application.

THE NUMBER OF QUEENS WE IMPORT FROM ITALY.

I SEE it is reported in one of the bee-journals that we import annually about 200 queens from Italy. If this figure were split in two it would be more nearly correct. We do not know how the mistake occurred, but perhaps through our fault in some way. In 1885 we imported 130; and during successive years our importations went down to nearly nothing while we had foul brood. In 1889 we imported 50; in 1890, 98. The fact is, one imported queen can be the mother of hundreds of daughters; and as they will live on an average about three years it does not take many queens to supply the prominent breeders, to say nothing of the importations that are made by other parties.

WHAT A VISITOR SAYS OF THE HOME OF THE HONEY-BEES.

WE have just had a very pleasant call from a couple of bee-keepers, one of them an Iowa man and the other a native of our own State. Said Mr. Firman, the gentleman from Iowa, after we had shown him about our premises, "Why, I had no idea you had such an *immense* plant. We get glimpses, occasionally, of some of the improvements in GLEANINGS, but there are few subscribers who realize the number and size of your buildings." This remark has been uttered so many times by visitors that we thought possibly some of our customers and other subscribers might like to get this bit of news. Our plant has been very much enlarged of late, and we are always glad to welcome our bee-friends; and while we can not always take the time to show them around, we want them to feel perfectly at home, and free to go through all the departments, and ask all the questions they wish. Our establishment is open from half-past six in the morning till seven at night, every day in the week except Sunday, and some times it is open and running night and day.

Our list of subscribers now numbers 10,054.

NEW YORK STATE BEE-KEEPERS' ASSOCIATION.

E. R. has just returned from a meeting of the said association, in Albany. We will try to give a report of it in our next issue. Although an off year, there was a good attendance, and the discussions were practical and to the point.

BEE-KEEPING IN DIXIE.

We have just printed a 60-page catalogue, with tinted cover, for Jenkins & Parker (formerly J. M. Jenkins), Wetumpka, Ala. This is not only a catalogue of implements, but it is quite a little text-book besides. Over half of it is descriptive, and is especially designed for the instruction of the Southern bee-keeper. Apply to the address as above.

THE OHIO STATE BEE-KEEPERS' ASSOCIATION.

Remember the time and place of the meeting of the association above—Feb. 10, 11, Toledo, at the Merchants' Hotel. It is expected that quite a number of Michigan bee-keepers will be present, and, altogether, we shall probably have one of the most profitable meetings ever held in the history of the association. The program is given elsewhere. Dr. A. B. Mason will be the presiding officer, and that bespeaks a good time, and lots of fun and profit for all who attend.

ADVERTISEMENTS THAT SAVOR OF LOTTERY SCHEMES.

We can not accept any advertisement that gives one purchaser any advantage over another by any scheme of luck or chance. Of course, this would not include special prices to those who made their orders early before the rush of business. But we must refuse to accept any thing that even indirectly encourages a taste for getting money by chance or luck. This sort of craze gets hold of people fast enough without any encouragement on the part of respectable journals and periodicals.

TEMPERATURE FOR CELLARS.

The temperature for our bee-cellar this winter has been in the neighborhood of 40. Last year it was from 45 to 50. The bees are in very much better condition than they were a year ago. Prof. Cook said, at the late Detroit convention, that he now prefers from 38 to 40. E. R. believes he is right. The old standard has has been all along about 45. Is it not possible that we have been mistaken? Last winter I noticed that, when the cellar went down to 40, the bees were quieter. Because the books said 45, I made efforts to raise it to that point, and keep it so, as nearly as I could. Last year at this time there was about an inch of dead bees on the floor; but now there are not more than 200 or 300. After all, are bees doing well in the cellar when there is an inch or so dead ones on the floor?

GIVE YOUR POSTOFFICE.

When you are renewing, be sure to sign your name and give your *postoffice* address. Every year, about this time, we receive a lot of renewals, with the mere signature, and nothing else. Most of them, with a great deal of trouble, we can hunt out on our books, and the rest have to lie until the subscriber "growls." Sometimes a subscriber will write from a postoffice other than the one to which his journal is sent. Another big hunt has to be started to find out where his journal goes. If our friends would be a little more careful it would save us a great deal of work. We have scolded about this so much that it sounds like a mere repetition; but it is one of the things that publishers are obliged to harp about more or less all the time. Remember, our subscription list is indexed according to *postoffices*, and not according to *names*.

REDUCED RATES TO THE OHIO STATE BEE-KEEPERS' CONVENTION.

The following, from Dr. A. B. Mason, will be of interest to Ohio, Indiana, and Michigan bee-keepers:

> *Friend Root:*—Please say in next Gleanings that a 1⅓ rate of fare has been secured for the round trip on railroads in Ohio and Indiana, to attend the Ohio State Bee-keepers' convention, to be held in Toledo, at the Merchants' Hotel, on the 10th and 11th of Feb. Rates at good hotels vary from one dollar up. In order to secure reduced rates of fare, let all buy certificates of their railroad agent, to attend the Ohio Republican League convention and banquet, and I will fix them so they will be good for one-third return fare. Tickets can be bought on the 10th, 11th, and 12th, and will be good for return up to and including the 14th. For parties coming from Michigan, the rate is two cents a mile each way, when parties of ten or more come and return together on one ticket, which must be bought as above for the Republican League convention and banquet. Write me for any further information that may be desired.
>
> Auburndale, O., Jan. 22. A. B. Mason.

LIFE-MEMBERSHIP IN THE N. A. B. K. A.

Since our last mention of the number of names that were already enrolled as life-members only one has been added. What's the matter? To make the association a power for good we need many more substantial life-members. One of our correspondents writes, that, if we "will merge the Bee-keepers' Union into the N. A. B. K. A., here is $10.00 for life-membership." We have scarcely given this matter a thought as yet, and consequently are unable to express any opinion as to the wisdom of such a course. We rather prefer to see what the General Manager thinks. If he and the other officers approve, it might be advisable to consider it in convention at the next session of the N. A. B. K. A. in Albany, but Manager Newman should still be at the head of the present Union. The following is the list of life-members:

D. A. Jones, Beeton, Ont.
Thomas G. Newman, Chicago, Ill.
A. I. Root, Medina, O.
E. R. Root, Medina. O.
J. T. Calvert, Medina, O.
Charles Dadant, Hamilton, Ill.
C. P. Dadant, Hamilton, Ill.
Eugene Secor, Forest City, Ia.
Dr. C. C. Miller, Marengo, Ill.
O. R. Coe, Windham, N. Y.
C. F. Muth, Cincinnati, Ohio.

HOW TO GET GLEANINGS FOR LESS THAN A DOLLAR A YEAR.

A large part of our subscribers are those who have been with us for years, and who, no doubt, expect to continue with us for years to come. To favor these and others who will liberally patronize us we have decided to make them this offer: We will send Gleanings for one year for $1.00; two years for $1.80; three years for $2.50; five years for $3.75; but to do this we must have cash in *advance*. If you have been so far pleased with it and the improvements it has inaugurated from time to time, you will probably wish to remain a subscriber; and the best thing for you to do, if you want to save money and do away with the bother and machinery of renewing annually, is to send $3.75 and we will make you a subscriber for *five years*. If your address is right, the journal will go to you uninterruptedly for that length of time. We propose to make this a standing offer. Any subscriber, new or old, can take advantage of it. Now, perchance you have just sent in your dollar for renewal, and you wish to take advantage of this offer. If you will send the balance *at once*, say $2.75, we will send it four years longer; or $1.50 two years longer; or 80 cts. one year longer.

RECESS AT BEE-CONVENTIONS.

WE attend conventions to hear the essays and subsequent discussions, it is said; but after a session has been held for a couple of hours, it is a great rest and pleasure to have the president announce a short recess. How pleasant it is to feel the warm grip of one whom we have long known through the printed page, and whom, for the first time, we now meet face to face! No, we do not attend conventions simply to hear the essays and discussions. We go to see, hear, and feel the personality of the good brothers and sisters who attend. Some of the most valuable ideas gleaned, oftentimes, are in the between sessions; and our presiding officers should give ample opportunity for hand-shaking, and this dual exchange of ideas.

A VISIT TO THE HOME OF THE HONEY-BEES, FROM DR. G. L. TINKER.

WE had a very pleasant call last week from our genial friend Dr. G. L. Tinker, of New Philadelphia, O. Many of our readers will remember him as the very fine workman who makes such perfect queen-excluding zinc, and such beautiful four-piece white-poplar sections. He was kind enough to give our saw-filer some hints in filing, to do smooth work rapidly—a secret he had heretofore kept to himself. He seemed to enjoy his visit very much, being agreeably surprised at the size and equipment of the Home of the Honey-bees, and many times complimented us on our work by the remark that it was much better than we used to do. He was on his way to Ashtabula to visit his brother and bring home a new zinc-perforating machine by which he would be able to make sheets of his zinc as large as 24 by 36 inches.

MORE UNCHARITABLENESS.

THIS time it comes from the Philadelphia *Cash Grocer*, of Jan. 12. This journal purports to be devoted to the best interests of retail merchants and country storekeepers; but I do not see how their best interests are subserved by statements like the following:

"The profit in teas is simply great. The tea sold by retail tea-dealers at 60 cents costs them 18 cents a pound; and other teas sold at 50 and 55 cents per pound cost 20 cents. There is big money in the tea business, if the trade can be had."

And here is another:

"The explanation of the great amount of maple syrup and honey in the market is found in the enormous product of the glucose factories, amounting to a million pounds per day. There are not trees and bees enough to produce the syrup and honey in the hands of the trade."

I wonder whether the *Grocer* folks judge other people by themselves when they say that the retail dealers charge 60 cents for what costs them only 18, and a staple article besides. They should be ashamed of themselves. In regard to honey and maple syrup, there may be some adulteration; but the statement that there are not trees and bees enough is not true. Perhaps it will astonish them somewhat to know that there are bee-keepers nowadays who raise honey by the carload; and I imagine that there are maple-trees enough too. If there is really any adulteration in syrup going on, as well as in honey, which is to some extent true, why not say so in moderate terms, and then let us all join and fight it, without flings like the above, against large classes of honest tradesmen?

HOW TO MAKE THE GARDEN PAY.

THIS is the title of a bright new book just published by Wm. Henry Maule, written by T. Greiner, author of the new onion-book, mentioned just below. This is certainly the ablest book, clear up to the present time, before the world. The description and comparison of the variety of methods of gardening under glass, commencing with cold-frames, then taking up cold-forcing-houses, next forcing-houses with steam-pipes or flues, and finally discussing the respective merits of steam and hot water, is worth to me a ten-dollar bill, to say nothing about the rest of the book. The engravings are beautiful; the print is second to none; and, best of all, the author is a practical gardener—one who loves the dirt, especially when it is enriched up to its highest capacity, and who evidently loves every tool used in the garden. He is not only conversant with all the new seeds, plants, and fertilizers, but he evidently has read up almost every thing written in the agricultural papers on the subject of market-gardening. The book is 6 inches wide, 10 inches long, ¾ inch thick, and contains 272 pages, and ever so many pictures. I have not had time to count them yet. If you have any notion of building a greenhouse, either for flowers or vegetables, or even if you want to make a hot-bed or cold-frame, it will pay you to have the book. We can furnish it postpaid for $2.00; or you can have it with GLEANINGS for $2.50 for the two.

THE NEW ONION CULTURE.

This is the title of another good book by our good friend T. Greiner, better known through the agricultural papers as "Joseph." It gives almost exactly the plan of raising onions described in our last issue. The book is finely illustrated, and is written in one of Joseph's happiest veins. In fact, the story is so taking that almost anybody might read it from beginning to end without a thought of being weary; and to one who loves gardening it is a gem among books. The only fault or criticism any one could make is, I think, that there is not enough of it, especially for the price, 50 cents. There are only 62 pages in the book; the type is large, and the work very open. The paper, however, is heavy and fine, and the print beautiful. If bound in cloth instead of paper covers, the price would not be an objection. The author admits that the price may seem high, but he thinks the discovery or secret really cheap at the price. This latter is true; but we should remember that the whole thing is given in our Ohio Experiment Station Bulletin for October, 1890. The Bulletin, however, does not go into the minutiæ in regard to every point of the work that the book does. We can furnish the book postpaid for 50 cents. If wanted by freight or express with other goods, 5 cents less. Or we will club it with GLEANINGS for $1.40. The Bulletin is furnished free of charge to all Ohio people; and I presume it will be furnished to those outside of this State for a very small sum. I think it will pay many times the cost for every one who sows a paper of onion seed, to use these helps. Joseph recommends that we start with an ounce of onion seed; and you *may* make enough on this single ounce to pay the cost of the book *fifty times over*. This seems like pretty strong language; but those who have tried starting large onions under glass will, I think, bear me out.

Illustrated HOME JOURNAL

3o Quarto pages—50 **cents** a year.

AN Elegant Monthly for the **FAMILY and FIRESIDE.** Printed in the highest style of the art, and embellished with magnificent Engravings. Sample FREE. Agents Wanted.

THOMAS G. NEWMAN & SON,
PUBLISHERS
246 East Madison St., - CHICAGO, ILL.

☞In responding to this advertisement mention GLEANINGS.

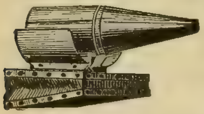
DR. TINKER'S SPECIALTIES!

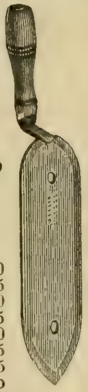
The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

✣BEST ON EARTH✣





ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	...$2.00
Conqueror "	3	" "	... 1.75
Large "	2½	" "	... 1.50
Extra (wide shield)	2	" "	... 1.25
Plain (narrow ")	2	" "	... 1 00
Little Wonder,	1¾	" "	... 65
Uncapping Knife.....		....	.. 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

MUSICAL INSTRUMENTS
MURRAY & HEISS

CLEVELAND OHIO.
SEND FOR CATALOGUE.

1-tfdb

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O., E. Kretchmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.;** R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., E. T. Abbott, St. Joseph Mo., I. D. Lewis & Son, Hiawatha, Kan., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD - BLAST SMOKERS.

Apply to ***CHAS. F. MUTH & SON,***
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

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TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE, KEITH & SCHMIDT CO.,
21-12db New London, Wis.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The demand for comb honey is more liberal. Receipts and supply are very light. We quote 1-lb. comb, white, 16@18; dark, 12@14; 2-lb. California, white, 14@15; same, dark, 12@13. Extracted, 6@7. *Beeswax*, 22@25.

CLEMONS, MASON & CO.,
Feb. 11. Kansas City, Mo.

ST. LOUIS.—*Honey.*—No extracted honey in market. It would bring, if bright, 6½@7c. Comb in light demand at 13 for dark, 16@17 for bright. *Beeswax*, prime, 26@27c. D. G. TUTT GRO. CO.,
Feb. 11. St. Louis, Mo.

CINCINNATI.—*Honey*.—Demand is good for extracted, with a liberal supply on the market of all but Southern honey, which is still scarce. It brings 6@8 cts. a lb. on arrival There is a fair demand for choice comb honey at 16@17c a lb. in the jobbing way. No sale at all for dark comb honey. *Beeswax* is in good demand at 24@26c a lb. for good to choice yellow on arrival. CHAS. F. MUTH & SON,
Feb. 14. Cincinnati, O.

CHICAGO.—*Honey.*—Market continues to be weak in tone, only small lots being taken by the trade, and that which falls below a choice article is very slow of sale. Best grades bring 17@18c; fair, 15@16c; dark, 12@13c. Extracted, steady at 7@8c, and in fair demand. *Beeswax* is selling at 28c for yellow to mixed.

R. A. BURNETT, 161 S. Water St.,
Feb. 10. Chicago, Ill.

ALBANY.—*Honey.*—The demand for comb honey is good for this season of the year, and stock on the market is small. Extracted buckwheat in good demand. No change in prices.

CHAS. MCCULLOCH & CO.,
Feb. 11. Albany, N. Y.

NEW YORK.—*Honey.*—Extracted dark in good demand at 7@7½c per lb. California light amber, 7¼; white, 7½. Comb honey all sold. *Beeswax*, 29c; supply small. F. G. STROHMEYER & CO.,
Feb. 11. New York City.

BOSTON.—*Honey.*—Fair demand for honey; supply very short. Fancy 1-lb. combs, 19@20c; fair to good, 18@19c; 2-lb. combs, 16@17c. Extracted, 8@9c. No *beeswax* on hand. BLAKE & RIPLEY,
Feb. 11. Boston, Mas.

SAN FRANCISCO.—*Honey* remains firm and in good demand, and we quote: Extracted, 5½@6½; comb, 12@15. *Beeswax*, 25c, and in good demand.

SCHACHT, LEMCKE & STEINER,
Jan. 22. San Francisco, Cal.

DETROIT.—*Honey.*—Comb honey is selling slowly at 14@15c per lb. Extracted, 7@8c. *Beeswax*, 27@28c.
Bell Branch, Mich., Feb. 11. M. H. HUNT.

FOR SALE.—Choice white-clover extracted honey, in 120-lb. cases; per case, $12.00. Autumn honey, per case, $9.00. J. A. GREEN, Dayton, Ill.

FOR SALE.—700 lbs. of clover honey in home-made kegs holding 55 lbs., for 8½ cts., delivered on cars at Farley. Can ship by I. C. R. R., or Chicago, St. Paul & Kansas City, or the M. & S. P. R. R.
4d JAS. SCOTT, Farley, Ia.

FOR SALE.—Six 60-lb. 5-gallon tin cans of clover extracted honey, at $5 per can. F. O. B. cars at Otsego. CALVIN LOVETT, Otsego, Allegan Co., Mich.

FOR SALE.—2000 lbs. comb honey in 12 and 24 lb. crates. L. WERNER, Edwardsville, Ill.

FOR SALE.—500 lbs. choice extracted honey, at 10c here, pkg. included. W. H. S. GROUT,
Kennedy, Chautauqua Co., N. Y.

FOR SALE.—Extracted honey, in 70-lb. tin cans, at 10 cts. per lb. f. o. b. LEWIS HAINES,
4d Moons, Fay. Co., O.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb E. J. BAXTER, Nauvoo, Ill.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-tfdb. Mt. Vernon, Ia.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of bees, hives, and apiarian supplies in general, from the following parties:

Leahy Manufacturing Co., Higginsville, Mo.
W. A. Chrysler, Chatham, Ont.
D. A. Jones Co., Beeton, Ont.
G. M. Doolittle, Borodino, N. Y.
A. A. Byard, West Chesterfield, N. H.
J. W. Rouse & Co., Mexico, Mo.
Luther & Horton, Redlands, Cal.
E. Kretchmer, Red Oak, Ia.
A. L. Kildow, Sheffield, Ill.
B. Davidson, Uxbridge, Ont.
Jacob T. Timpe, Grand Ledge, Mich.
W. J. Row, Greensburg, Pa. Queens only.
Burdsall Apiary & Supply Co., Lebanon, O.

The following are from our press:

J. D. Goodrich, East Hardwick, Vt.
Levering Bros., Wiota, Ia.
E. J. Shay, Thornton, W. Va.
J. F. Michael, German, O.
J. E. Stewart, Prophetstown, Ill.

THROUGH AN ERROR,

My advertisement in GLEANINGS, Feb. 1st, **inside back cover** (which please see), failed to say: For $2.00 I will send 1 lb. each of Timpe's Seedlings Nos. 1, 2, and 4, postpaid; or for $2.25 I will send 1 lb. each of Nos. 1 and 2, and 2 lbs. of No. 4, prepaid (give your express office). Remember, I am giving **one full colony** and **seventeen** 3-frame nuclei of my **five-banded Italians,** for largest yields, largest potato, and best names suggested. And to every order received within 30 days **from this ad't** I will give from **2** to **5 packets** of choice **garden-seeds** (novelties) **free.**

Order now, before the stock is exhausted. Potatoes and seeds will be sent the last of March or first part of April, **all charges paid.** If possible, send express or postoffice money order. Catalogue now ready, mailed for 1-cent stamp.

Jacob T. Timpe, Grand Ledge, Mich.

☞In responding to this advertisement mention GLEANINGS.

75 Fine Tested Italian and Albino * * * * * Queens For Sale at $1.75 Each.

Select tested golden Italian queens, $2.50 each. Select tested Albinos, $2.00 each. First come first served. Untested by April 15, $1.00 each, or 6 for $5.00, or 12 for $9.00. Orders booked now, and pay for queens when received. I guarantee safe delivery and satisfaction on every queen by mail. Thanks for last year's patronage.

4-8db **J. W. TAYLOR, Ozan, Ark.**

☞In responding to this advertisement mention GLEANINGS.

ROOT'S COMB-FOUNDATION MILLS.

We wish to say that we are handling Root mills this season, and can furnish them to the bee-keepers of Canada less than you can buy a single mill from Ohio. All mills warranted. Write us if you want to buy. You will save money by doing so. We shall sell comb foundation, brood, at 40 cts. per lb.; section comb at 45 cts. All wax will be bought from Eckermann & Will, Syracuse, N. Y., and every pound warranted pure wax, or $5.00 will be given for every pound that is not right. **R. E. Smith,**
Box 72. **Tilbury Center, Can.**

FOR SALE. The walls and water power of an abandoned gristmill, 10 acres land in a good location for a bee-supply business. No factory near, and large apiaries in every direction, or will take partner. Address GEO. W. RANDALL,
4-5d Big Rock, Iowa.

FOR SALE. Three or four S. C. B. Leghorn cockerels, as good stock as can be found in the world. Come and see them. Write for prices with your address on postal, and you will receive by return mail my new descriptive circular, free.
4-5-6d ROBT. C. SMITH, Swissvale, Pa.

WANTED FOR CASH. From 50 to 75 colonies of Italians or hybrid bees, to be delivered about first of May. Langstroth hives preferred.
4tfdb E. C. ELVER, Mt. Horeb, Dane Co., Wis.

BARRED PLYMOUTH ROCK COCKERELS, $1.00; hens, 75 c. Also Quinby-hive corner-clasps for sale 20tfdb L. C. AXTELL, Roseville, Ill.

Leahy M'f'g Co.,

—UNDOUBTEDLY THE—

LARGEST PLANT IN THE WEST,

Built exclusively for the manufacture of Apiarian Supplies. **One and One-Half Acres Floor Space.** We sell as **Cheap as the Cheapest**, and our goods are as **Good as the Best.** Parties will do well to **write us** for estimates on large orders. We will send you our catalogue for **your name on a postal card.** Address **LEAHY MFG. CO.,**
Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

The **Bee World** is published monthly at 50c per year. It is **devoted** to collecting the **latest NEWS,** inventions, and discoveries throughout the bee-keeping world. **THE BEE WORLD.** If you want to keep **posted,** you cannot afford to **do** without it. **Subscribe now.** Sample coples free.
2-7db W. S. VANDRUFF, Waynesburg, Pa.

☞In responding to this advertisement mention GLEANINGS.

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

☞In responding to this advertisement mention GLEANINGS.

Dewey's Peet Cage.

During the season of '91 we shall ship queens from imported stock direct from Italy in our new and SAFE SHIPPING and INTRODUCING CAGE. Sample and description of this cage by mail, 10c.

F. H. & E. H. DEWEY,
55 Mechanic St., Westfield, Mass.

☞In responding to this advertisement mention GLEANINGS.

NEW FACTORY.

On or about Feb. 10, 1891, we will move into our new factory, built exclusively for the manufacture and sale of

APIARIAN SUPPLIES,

located in Ottumwa, Wapello Co., Iowa, where we will manufacture and sell all kinds of Apiarian Supplies at the lowest possible prices, after the above date. Write for illustrated catalogue, to 1tfd

GREGORY BROS. & SON,
Farragut, Fremont Co., Ia.

☞In responding to this advertisement mention GLEANINGS.

JUST OUT.

SOMETHING ENTIRELY NEW IN

HIVES!

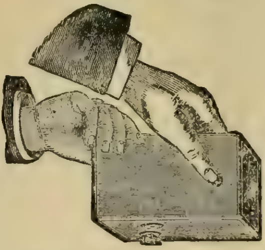
CIRCULAR FREE.

Address

JAMES HEDDON,
DOWAGIAC, MICH.

2-3-4d Please mention this paper.

NEW KODAKS.



"You press the button, we do the rest."

SEVEN NEW STYLES AND SIZES,
ALL LOADED WITH ***TRANSPARENT FILMS.***

For sale by all Photo. Stock Dealers.
1-2-3-4d **THE EASTMAN COMPANY,**
Send for Catalogue. ROCHESTER, N. Y.

☞In responding to this advertisement mention GLEANINGS.

DON'T FORGET To send for my descriptive catalogue of **ALBINO BEES.**

A. L. KILDOW, - - Sheffield, Ill.

Please mention this paper. 4-5db

INCREASE YOUR HONEY-CROP

10% to 25% by getting the Five-Banded Golden Italians. Took **First Premium** at Illinois State Fair in 1890. The judge said: "They were the quietest bees on exhibition; the drones were almost pure yellow." Warranted queens, $1.25; Tested, $2.00; Selected Tested, $3.00. Order now, pay when queens arrive. Send stamp for price list. 1tfdb

BARRED PLYMOUTH ROCK EGGS FOR SALE.
Good reference given.
S. F. & I. TRECO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

BARRED
PLYMOUTH ROCKS.

Birds and eggs in their season. Cockerels $3 to $5; choice hens $2 each; eggs $3 per setting; 2 settings, $5.

MRS. F. P. HISH,
TOWER HILL,
SHELBY CO., ILL.

☞In responding to this advertisement mention GLEANINGS.

CHICAGO
BEE-KEEPERS' SUPPLY CO.

OFFICES:
65 CLARK ST., ROOM 14, CHICAGO, ILLINOIS,
and TOPEKA, KANSAS.

Manufacturers of and dealers in bee-keepers' supplies. For prices of bee-hives, sections, shipping-crates, frames, foundation, smokers, etc., write for circular and special prices before placing your order.
J. B. KLINE, Sec.
1tfdb Please mention this paper.

ALLEY'S IMPROVED AUTOMATIC
SWARM-HIVER.

Thoroughly tested, and guaranteed to **SELF-HIVE** every swarm that passes through it. Sample mailed for $1.00.
AMERICAN APICULTURIST one year and Swarmer by mail, $1.50. Sample **APICULTURIST** with full description of **SWARMER,** illustrated, free. 1-4db **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. FEB. 15, 1891. No. 4.

STRAY STRAWS

FROM DR. C. C. MILLER.

A State society is beginning to be talked of in Illinois.

Hutchinson calls me a "gossiper." Wait till I catch him away from home.

A trade-mark for a body of bee-keepers is talked of. It might be a good thing. It might be a bad thing. I don't know.

Drones, Prof. Cook thinks, depend on the nurse-bees for their albuminous food—an additional argument against tolerating them.

Illinois doesn't propose to be left in the rear. She has a bee-keeper in her legislature—J. M. Hambaugh, Spring, Ill., a good square man.

Fire in bee-cellars is needed if too cold. I use it oftener for ventilation. Heat the air, and the cold outside pure air will rush in to take its place.

Heddon says the black bee is most amiable of all, but stings more, because it takes wing more readily. I'd rather have bees that don't take wing so readily.

The editorial "we" has been banished from the columns of the *Review*, and Hutchinson slings around his I's as easily and gracefully as if he had *always* talked good English.

I swept out the shop cellar for the first time, Jan. 13. I got about two quarts dead bees—not many from 112 hives after 66 days' confinement; time enough for bushels, though, before spring.

Painted muslin is not advisable for hive-covers unless it is better than oil cloth. I tried 200 covers of extra good oil cloth, and they lasted so short a time that tin is much cheaper.

No fire in my bee-cellars this winter till Jan. 10. Then I saw some mold on dead bees on cellar bottom; didn't smell just the best. Temperature 42°; raised it to 53°. This was in shop cellar.

A small bee-space between top-bars and sections was considered, at the Northern Illinois convention, of as much or more consequence, in preventing brace-combs, as thick top-bars.

Poison for mice is thus daintily served up by E. C. Eaglesfield (*A. B. J.*). He says, "I take a cooky and moisten one side, then place the crystals of strychnine all over it, and lay it where nothing can get at it but rats and mice."

"Observer," in *C. B. J.*, wonders what I'll think when I hear that "steps are being taken to put a stop to the importation of bees by the pound from Uncle Sam's, unless they have passed through quarantine." I think that Canadians will show good sense to take any steps to make the danger from foul brood less. If I had smallpox at my house. I shouldn't want any of the family to go to a neighbor's.

Lamps and oil-stoves have been used to warm cellars, but I never tried any thing of the kind till this winter. Then I put a gasoline-stove in the shop-cellar. It's better than none, but I don't like it. The combustion fouls the air.

"Bees visit only one kind of flower on the same trip." That's old but not always true. When forage is plentiful it may be true; but when scarce they'll change from one kind to another several times on the same trip. I've seen 'em do it.

A honey house or shop, a number of writers in the *Review* agree, should be at the *side* of the apiary, never in the center. Heddon makes a good point in preferring it at the south side, that you needn't look against the sun in watching for swarms.

Taylor's secret is out. The *Review* says he keeps his honey in a warm honey-house, with fire in winter. Of course, it's a good plan. More than that, I suspect if the place is kept hot enough long enough in the fall it will do with little or no fire through the winter.

"Do bees eat eggs?" That's the question up now, and I hope we'll learn when they do and when they don't. I know I've had bees starve to death, leaving eggs in the hive; and I know if I remove a queen from a hive, I expect nearly all the eggs to disappear within 24 hours.

The Review is getting down to business, reviewing. Hutchinson knows how. Now that I've had my fling at him, I must own up that he has furnished plenty of material from which good cream could be had. He did a good job of skimming, too, on the new books that were published last year.

Another idol fallen. I've always had such faith in Prof. Cook, but I've found him out at last. Friend Root tells (p. 61) about a man being hasty, and imagining evil of others, and then says Prof. Cook has done much to bring about this state of affairs. And to think that I had loved the professor as a brother!

Manager Newman says: "Suppose now, that in America it were once established by law, that, to wantonly kill bees, were a punishable crime! How quickly the owners of the deadly cider-press and sugar-refineries would have to *screen out* the bees—or the Union would be after them!" Well, "suppose now" the Union gets such laws made.

Legislation is coming to the front as one of the needs of bee-keepers. Daniel Wyss, in *American Bee Journal*, calls for laws forbidding poisonous spraying when trees are in bloom. Different States are asking legislative aid to help the honey show at the World's Fair. Prof. Cook, in his president's address at the Michigan convention, urged a law against spraying fruit-trees in bloom. About three-fourths of the convention were with him. They appointed a permanent committee on legislation.

SORE-THROAT REMEDY, from the *Medical Brief.*

Amm. tinct. guaiac - - -	4 drachms.
Comp. tinct. cinchonæ - - -	4 "
Potass. chlor. - - - - -	2 "
Extracted honey - - - -	4 "
Powd. acaciæ - - - - -	q. s.
Water - - - - - - -	2½ ounces.

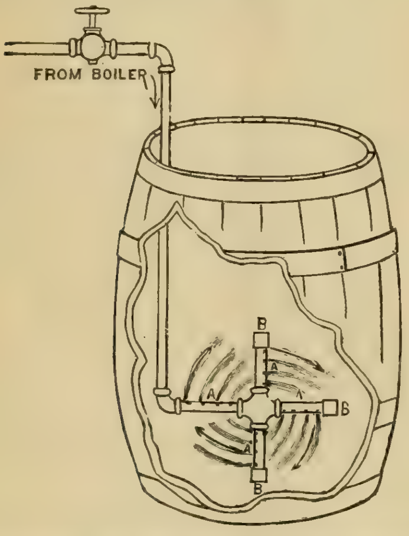
To be used as a gargle, and a teaspoonful may be swallowed every second hour.

GENERAL CORRESPONDENCE.

RENDERING COMBS WITH SULPHURIC ACID.

HOW TO GET THE MOST WAX POSSIBLE OUT OF OLD COMB.

After reading E. France's article on rendering old combs into wax, on page 15, I thought I could give you a better plan, and one which would take that dark-colored wax and make it into as nice wax as any you ever saw. It will be so clear, that, when melted, you can see to the bottom of a dipperful, looking like wine. By this plan you can take the refuse of cakes of wax, that which is scraped off the bottom after cooling, and looks like sand, and make it into as nice wax as can be made. This last season we had a barrel of this dark stuff, which looked like dirt, and you would have said it was not worth the trouble; but I put it through the process, and got from it 60 lbs. of yellow wax, worth at least $15.



APPARATUS FOR RENDERING REFUSE WAX WITH SULPHURIC ACID.

I know that iron or galvanized iron will turn wax a dark color. I went to quite a little expense rigging up steam-pipes, and tanks of galvanized iron for my foundation business. The first melting did not show much, but after melting the scraps over three times I stopped making and tried to find out what was the matter. I knew the wax at first was all right, and concluded, after a while, it was either the galvanized iron or steam of too high pressure. I then went to work, tore down all the fixtures, and went back to melting in a large wooden tub. This wax, which was almost a dark green, I put through my process of melting, and had yellow wax again. My plan, whereby I can render 100 lbs. of wax from old combs in three hours, is as follows: Get a barrel that is good and strong, and ⅜ steam-pipe, long enough to reach from a steam-boiler to the bottom of the barrel. Copper pipe would be better, but I find the small surface of the pipe touching the wax does not make any appreciable difference. You want a valve to shut off the steam, four pieces of pipe five inches long, an elbow, a cross, and three caps. In the pieces of pipe five inches long drill three 1/16-inch holes, spaced about two inches apart; screw an elbow on the bottom of the pipe coming from the steam-boiler; then one of the short pieces of pipe in the elbow; now screw on the cross, then the three pieces of pipe, and put a cap on the end of each. Turn the pipes until the small holes point all one way, so the steam in issuing will set the water whirling. Now fill the barrel one-fourth full of clear water. Put in one pound of sulphuric acid; turn on the steam, and when boiling put in the old combs. Let all boil until heated thoroughly, and stir with a large stick at the same time.

Now you will want a press. Mine is simply a box made large enough to hold three racks, made of ⅜x½-inch square sticks 15 inches long, nailed to two end pieces 15 inches long, so there will be ⅛ inch between the slats. In the bottom of the box I have a tin dish one inch deep, and it just slips down inside nicely. At one side the tin is turned down, and a hole is made in the bottom of the box for the wax and water to run out. Get a rim two inches wide and twelve inches square made from ⅜-inch stuff, and three pieces of burlap three feet square. Lay one of the racks in the tin dish in the bottom of the box; on this the two-inch rim; over this one of the pieces of burlap. Press the burlaps down in the rim, and dip the melted wax over into it until full to the top of the rim. Bring the burlaps over the top; take out the rim; lay another rack on top of this, and so proceed until you have the three filled; then place a follower on top of all, and a common jack-screw on top of the follower. Make a frame out of 2x4 scantling to go under the box and come to the top of the jack-screw. You will want two bolts to go through the top and bottom pieces of the frame. Have them of ⅝ round iron, and screw the nuts up tight. Put the top piece of the frame over the jack-screw, and turn the screw slowly so as to give a chance for the wax to run out. After it has stopped running, take out the refuse, and you will find the wax nearly out. You could not get out of a barrel of comb, after pressing, if it were possible to get it out, over a teacupful of wax. We have tried a number of ways, but the above is the best.

I tried an arrangement inside of a barrel to continually stir the comb; and over the comb, under water six inches, I had a screen to keep refuse from rising. I thought all the wax would in time rise to the top, but more stayed under the screen than came to the top. I also tried keeping two barrels of comb, that was thoroughly broken up, moist with water for two years, to see if I could not rot the cocoons and pollen so it would be like dirt. If I could rot it, I could get out all the wax, and not make me a press, but simply melt it in water, and the dirt would settle. This was a failure. The smell of the stuff when melting would fairly knock a man down at ten rods. I was very sick with malaria shortly after. Some thought I caught it from that bad-smelling boiling mixture. The wax I did get out of it was all right. I had to use the press to finish up. No more jobs like that for me. I can take cakes of wax that come to me dark, and, after rendering, they will be a nice yellow color. You simply want to melt them in the acidulated water, cover the barrel over tight, and throw an old horse-blanket over the whole; let it stand five hours, and then dip out in pans carefully, so as not to disturb the dirt at the bottom. Save all the refuse from scraping the bottom of cakes, and put through the same process.

F. A. SALISBURY.

Syracuse, N. Y., Dec. 5, 1890.

[Thanks for your valuable article. When I visited the Dadants a few weeks ago I learned that they treated their refuse, that would not refine by ordinary methods, with sulphuric acid. I do not remember just exactly the proportion of sulphuric acid they use with the water, but I think their method and plan was very similar to the one you describe. If I am wrong they will please correct. Mr. Dadant told me when they first used sulphuric acid, the man who used it earned for them $75 the first day, and a smaller amount the second day, until all the cast-away wax refuse which could not be refined by ordinary methods was used up. The price at which wax now sells renders this a very important matter. Mr. C. P. Dadant told me not to throw away old refuse; that a great deal of first quality of wax can be gotten from it by the use of the solar wax-extractor and sulphuric acid. The action of the acid seems to be to rot or disintegrate the cocoons and other matter, so as to free the wax.] E. R.

MANUM'S VILLAGE APIARY.

HOW FRIEND MANUM MANAGES TO AVOID HAVING HIS BEES TROUBLE HIS NEIGHBORS.

Mr. Editor:—Having often been asked by bee-keepers and others whether my bees in the village were troublesome to my neighbors, I will give you a little of my experience in this respect, as related to my friend J. H. Larrabee, in answer to his questions while visiting me.

"Manum, do your neighbors ever complain that your bees are troublesome here in the village?" asked Mr. Larrabee.

"No, not very much. In fact, nearly all seem to be interested in the success of my business, and they show a very friendly disposition toward the bees. There are times, however, when I have to be on my guard to prevent any annoyance to my nearest neighbors. For instance, in the spring of the year, when the bees have their first flight, if it happens to be on a washing-day, the ladies in the vicinity of the apiary scold a little if their clothes get spotted, as they most certainly will if put out to dry when bees are flying; but many of them have learned to wait until the bees have had their flight, before putting out their clothes, especially those who have had their clothes soiled once to the extent that they were obliged to wash over again."

"Suppose they are thoughtless, and do put out their clothes, and they get spotted; how do you manage an amicable settlement?" asks Mr. L.

"Oh! that is quite a simple matter. Whenever I learn that my bees have soiled my neighbors' clothes, or annoyed them in any way, I just present them with a few boxes of honey, which has never as yet failed to sweeten and harmonize their natures."

"I notice one of your neighbors has a nice lot of fruit-trees just over the fence from your apiary. Does he ever complain that the bees annoy him?"

"No: he has never complained of being annoyed; but when I first started in the business, and when an occasional swarm would cluster on some of his fruit-trees, he would watch—from a distance—and request me not to cut limbs unnecessarily; but when he found that I never cut a limb nor branch he became quite interested in the bees; and now, whenever he finds a swarm clustered he notifies me of the fact, but I never fail to present him with honey in such a case."

"Do your neighbors ever complain that your bees injure fruit, especially grapes?"

"Yes, a few years ago I had two neighbors who had a nice lot of grapes; and it being a very dry season, the grapes cracked open when ripening; and there being a dearth of honey at the time, the bees visited the grapes in large numbers, and were really a great annoyance. One of these men once spoke to me about it, asking me if I could not fasten my bees in their hives until after his grapes ripened and were gathered; but a few words of explanation convinced him that it would not be best for me to do so. He thought the bees punctured the grapes; and all I could say on that subject failed to convince him that they did not. I finally went with him into his grapery, where we watched; and by much watching and experimenting, I succeeded in convincing him that the bees worked on only such grapes as were already punctured or cracked open, caused by the severe drouth. I told him that if we could only have a shower, the trouble would be ended; and it so happened that it did rain the very next day, and sure enough the bees did not visit the grapes any more that season. This man is now a friend of the bees, and has never been troubled that way since, owing to the fact that we have not since happened to have a drought at that season of the year. The other neighbor, who, by the way, is of a very different temperament, said nothing to me about the bees working on his grapes, but tried to get even with the bees by destroying them. One morning he called to his nearest neighbor, 'Hill, come over here; I want to show you something. There. See those boards there? Well, now, you just keep quiet and I will show you how I fix Manum's bees that are eating up my grapes.' He had two boards, each four feet long, arranged fly-trap fashion, the inside of which was covered with syrup to attract the bees; and, slam went the boards; and then with a shingle he scraped off the bees. 'There,' he says to Hill, I shall keep that trap at work till I kill every bee Manum has got, unless they let my grapes alone.' It happened that Hill knew something about bees, and he laughed at this good man for his folly, telling him that, instead of doing me an injury, he was doing me a good service; because, as the honey season was over, I had many more bees in each hive than I wanted, and that those he was killing were the old ones that I wanted to get rid of, and, besides, that young bees were hatching much faster than he could kill the old ones. He advised him to talk with me on the subject. That day I chanced to meet Mr. Hill, when he told me what he had witnessed, and we had a good laugh over it. But I called on my good friend and tried to settle with him for the damage the bees had done, but he would take nothing. I explained to him as well as I could the condition of things, and related my experiment with the other neighbor that very morning.

This good man seemed to have gained new knowledge of things, and admitted that he had acted a little hasty. That evening I presented his wife a few boxes of honey, and in return he sent me a fine selection of choice grapes. Since then all has been peace and harmony between the bees and fruit-men in this place, so far as I know."

"Do the ladies near you ever complain that the bees trouble them while they are canning fruit, making pickles, etc.?"

"No particular complaints have come to me, and yet some of my neighbors have mentioned that, on such occasions, the bees would enter the house; but, surmising the cause of their intrusion, they closed the doors. But these instances are now very rare, as nearly every house is provided with screens, which prevent the bees from entering, as well as flies. Let me tell you, Mr. Larrabee, that I believe that I am in an exceedingly favorable locality so far as regards kind and sympathetic neighbors, for I have not, to my knowledge, a neighbor who is not interested in my success, for there is hardly a person of my acquaintance but that, when I meet him, inquires after the bees, and expresses a wish that I may be successful. I will give you the experience of one day with my neighbors, as I noted it down. In the morning I went to the office to mail a few queens, when I met a neighbor, who asked, 'Manum, how are your bees doing this season?' My answer, of course, was, 'Not very well yet.' 'Well,' says my friend, 'I am sorry. I hope they will yet make you a lot of honey. I have been thinking of you for some time, and wondered whether you were getting much honey.' In a few moments I met another neighbor who asked, 'Manum, are your bees doing any thing this summer?' 'Well, Mr. Wright, they are doing just about nothing.' 'Well, what is the matter? You have had several poor years now in succession, and I did hope they would do well this year. Do you salt them enough? I remember when I was a boy my grandfather used to salt his bees, and he said they worked better when salted.' The next person who hailed me was a lady. 'Mr. Manum, your bees must be making lots of honey now, for I see so many clover-blossoms everywhere; and yesterday there was a lot of bees getting honey from the clover on our lawn, and I forbade the children from playing there for fear they might disturb the bees, for I am so anxious that your bees do well for you this year, you have had such bad luck for a few years past.' On my return from the office, I harnessed a horse and started for one of my out-apiaries. I had gone but a short distance when I met a farmer who inquired about the bees much as the others had, and asked whether I thought bees would get as much honey from Japanese buckwheat as from the other varieties, and remarked that, if they could, he would sow five acres instead of one, as was his custom, and said that he thought that, inasmuch as my bees were a benefit to buckwheat, farmers ought to sow more and reap the benefit from the bees, and at the same time help me.

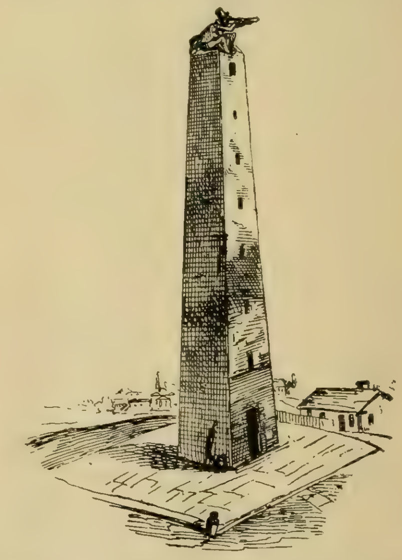
"I soon met another farmer who asked, like all the others, how the bees were doing, and then asked whether it would be any damage to me if he should cut his alsike clover, which I had induced him to sow, while it was in blossom. I told him, that undoubtedly it would rob the bees of so much pasturage, and, besides, it would damage him; for, unlike the red variety, alsike clover makes better hay if allowed to stand until nearly all the blossoms turn brown, because it is finer than red, and of such a nature that it is much hardier when allowed to mature; and, again, that, unlike red clover, it seeds with the first crop; hence, if allowed to nearly mature, the seed furnishes much additional nutriment; whereupon he decided to let it mature. On that day I met 11 persons who manifested a similar interest in my welfare and success, as did those whom I have mentioned. In fact, I do not know of a person of my acquaintance who is not friendly to the bee-business; hence, I say, that, judging from an occasional article that appears in the bee-papers regarding the enemies of the business, I feel that I have a favored locality in that respect, for I have most excellent neighbors."

Bristol, Vt. A. E. MANUM.

RAMBLE NO. 37.

THE BAY STATE APIARY.

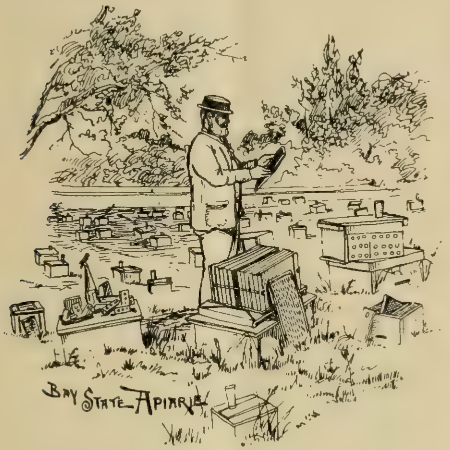
We reluctantly bade our Rhode Island friends good-by, and sped on our way toward the Bay State Apiary. Our route conducted us through the city of Boston, and here our patriotic blood became so stirred up that we lost our reckoning. But Boston people have erected a massive stone tower on Bunker Hill, where the traveler can climb up 294 steps and get a wide view. This view enabled us to get our reckoning again in a manner highly satisfactory. We immediately ran downstairs and followed our reckoning, and were safely landed in Wenham, about 11 o'clock. A street-car was standing near, and an inquiry elicited the information that Mr. Alley lived half a mile from the depot. We journeyed by street-car until the conductor pointed out the residence of our friend, and we were soon exchanging our identity with Bro. Alley. Our identity seemed to be satisfactory, and we were invited to rest a while in his den, and we gratefully accepted a rocking-chair. We found Bro. A. just giving the finishing touches to the October issue of the *Apiculturist*, and his letters and MSS. were in a rather promiscuous heap upon the table. We also noticed a large pile of "Thirty Years Among the Bees," ready to mail, besides quite a number of *Apiculturists*. There were also several crates of



BUNKER HILL MONUMENT; THE RAMBLER GETTING HIS EYE ON HENRY ALLEY.

fine comb honey and cans of extracted honey which had just been brought from a local fair which Mr. A. had just been attending. Both quantity and quality showed that Eastern Massachusetts had enjoyed a good honey-yield.

A call to dinner transferred our talk to the dining-room. While engaged in doing justice to Bay State substantials, who should come to share them with us but Bro. Pratt, of Beverly, Mass.? After dinner we all felt remarkably well and good-natured, and we adjourned to the bee-yard. Bro. A. had just put up his last shipment of queens; and as they were piled up nicely on the cover of a Bay State hive we brought our camera to bear upon them, Bro. A., and the queen-rearing portion of the Bay State apiary. He is manipulating a Bay State hive, and we caught a very good view. Forty full colonies are in the home yard, besides over two hundred queen-rearing hives. The little hives and tin feeders were scattered promiscuously, with entrances toward all points of the compass.



LAST SHIPMENT OF QUEENS FROM THE BAY STATE APIARY, SEPT., 1890.

We expressed a desire to see the yellow Carniolans, and were immediately shown a colony that would ordinarily pass for very good Italians. But these bees, when the hive was opened, showed all the traits of the dark Carniolans. No veil nor smoke was used. Quick motions near the comb or over the hive were not resented. As to honey-gathering qualities, we should think that Eastern Massachusetts is not the locality to test them for prodigious yields; but Bros. Alley and Pratt both have great confidence in the superiority of this strain over all others.

We were next shown the colony in which was installed the celebrated $100 queen. This colony had thrown off a swarm quite early, and during the season sixty frames of brood had been drawn from the parent colony alone for queen-rearing. But whatever prodigies the colony had done, we noticed that they were very active; and though it was during the last days of September, they were busy at work; and, allowing the Rambler to judge, it was the best colony in the Bay State apiary.

HOW ALLEY INTRODUCES A FERTILE QUEEN WITHOUT CAGING.

While talking about introducing queens, Bro. A. said he would show us how to do it. Taking a fine large fertile queen from a nucleus he stepped to a full colony, removed the cover, and dropped her, in an unceremonious manner, among the bees. We watched her a few moments. The bees were friendly, and she marched straight down between the combs, the reigning majesty. The colony had been queenless three days, and it was *just the proper time* to introduce her. Much earlier or much later than 72 hours would have resulted differently.

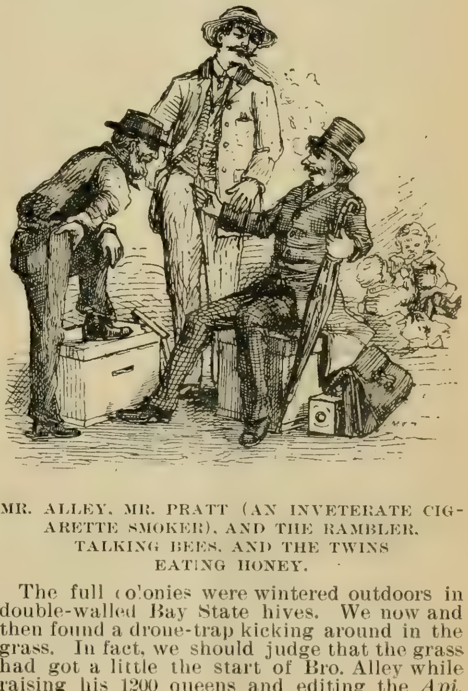
HOW TO INTRODUCE A VIRGIN.

We will now go with Bro. A. and introduce a virgin queen to a nucleus. The tobacco smoker is lighted, and the caged queen, perhaps just from the nursery, is taken to the queenless nucleus. A green plantain leaf is inserted in the entrance, the cover removed, and a couple of whiffs of tobacco smoke, and another as the queen is dropped, and the cover is replaced. We thought that was doing things quite rapidly, and removed the cover to look a little longer. Bro. A. says, "Wait a few minutes, and we will examine them again." He keeps a record of the condition of the nucleus, with a shoetack system. The Rambler will not undertake to describe the various positions, slants, and angles, and what they mean.

About this time we returned to the nucleus, and found every bee in the bottom of the nucleus in a stupefied condition; and when their senses returned, the virgin queen was accepted. The plantain leaf soon wilted, and the bees could pass to their work. It struck the Rambler all of a sudden that these 200 nuclei, so well stocked with bees, would make several good colonies, and we asked what was to be done with them.

"Oh," said he, "some frosty morning I will brush the bees off into the grass. It doesn't pay to unite and feed up. The bees usually die during the winter, and they might as well die now, and save all of the bother. I purchase bees in the spring to supply the waste."

The little combs are packed away in barrels, and securely headed up to keep mice away from them.



MR. ALLEY, MR. PRATT (AN INVETERATE CIGARETTE SMOKER), AND THE RAMBLER, TALKING BEES, AND THE TWINS EATING HONEY.

The full colonies were wintered outdoors in double-walled Bay State hives. We now and then found a drone-trap kicking around in the grass. In fact, we should judge that the grass had got a little the start of Bro. Alley while raising his 1200 queens and editing the *Api.*

His apiary was, however, about as tidy as the average run of bee-yards where there is much work done. We have noticed that these gilt-edged apiaries are the ones that do not bring in a large amount of surplus cash.

While in the Bay State apiary we did not talk so fast and get so absorbed as to fail to notice a very pleasant feature in the apiary. Two wee bits of granddaughters were upon his lap or following his steps when at a safe distance from the bees. They were indulged with sauce-plates, and spoons and honey; and while we were talking bees, the honey was distributed in various directions. Bro. A. is positive in his views, and believes his method of queen-rearing is *the* method. His claim, that queens should be reared from the egg, though not much discussed at the time, had the effect of setting the Rambler to thinking about the matter, and the results of our cogitations will be given in our next. Rambler.

[Now, look here, old friend; while we are greatly rejoiced at this pleasant glimpse of friend Alley's place of abode, when you tell us you "ran downstairs" on Bunker Hill monument we think you are getting decidedly in the way of skipping along almost too fast. I have been up and down those "stairs," as you call them, myself, and I did not feel very much like running. In fact, I sat down and blowed several times between the top and bottom. I am very glad if you can see friend Alley's ranch from the top; but when I was there I did not know of friend Alley's place nor about bees either. In my next visit I will be sure to hunt him up—yes, even if he does, as I have heard, manage to get a good deal of tobacco out of the way. While we are in the open air, I suppose I should not mind it very much. That idea of a plantain leaf for closing an entrance is certainly unique. By the way, didn't I have a little hand in that discovery? You know I told you that Dr. Miller threw some green leaves on the top of any hive that needed attention. If they forget to remove the leaves when they go away, the leaves dry up and blow away. In any case, they know at a glance (by the looks of the leaves) about how long ago the mark was made. Now, then, if we wish to close an entrance, say for a few hours, a green leaf will fill the bill. In regard to introducing a queen by just letting her loose, I suppose some of you know you can do this at almost any time, about three times out of four. When honey is coming briskly, and the colony has been queenless long enough to start queen-cells, we can do it certainly nine times out of ten. I hope friend Alley will excuse me for remonstrating against brushing the bees off on the grass. Brush them into a hive, give them a comb or two, and some sort of queen, and let them be happy while they live. Keep them, like the old horse, for the good they *have* done. We do not like your reflections on gilt-edged apiaries, exactly, friend R. It is true, there are apiaries where the gilt-edged feature is carried to extremes. I have seen some of them myself—some of those professional men, for instance, who have lots of money. A real nice attractive apiary wants to be the work of somebody who has to scratch and scrape, just a little, to make both ends meet. This will keep out of sight superfluities (just for show), and yet have things neat and in order, arranged so as to give the greatest facilities for rapid work. I am very glad of that glimpse you give of the twins. We would not have missed them for any thing. By the way, we wonder how *many* of the veterans have arrived at the dignity of being called "grandpa" by some little "new edition." Friend Alley, we lift our cap and extend our congratulations.]

HOW TO BIND A VOLUME OF GLEANINGS.

PLAIN DIRECTIONS, AND HOW TO DO IT SUBSTANTIALLY AND NEATLY.

I have just finished binding the last volume of Gleanings; and the thought comes to my mind, "What do its ten thousand readers do with the back numbers?" To many of them it is no doubt as interesting, entertaining, and instructive, as it is to me; and I wonder how many preserve them as carefully as I do, and how they do it. Some, no doubt, take them to a book-binder, have them bound substantially, and then give them a good corner of the book-case or library. Another way is to lay them aside, on a shelf, or in a drawer, where they will be handy to re-read, or for reference. But we all know what becomes of unbound journals and magazines—or, rather, we *don't* know. They are mislaid, borrowed, and never returned—disappear mysteriously during some house-cleaning raid, or are carried out of sight and out of mind to the garret or lumber room. Another method, *my* way, and so I think it a good one, is to bind them in tough paper covers at home; and, with your permission, I will tell your readers how to do it neatly, cheaply, and well.

You will need some brass wire, as heavy as or a little heavier than a stout pin; a hammer, an awl, a file, or a pair of snips to cut the wire; pliers to bend it; paste, and some heavy tough paper.

Gleanings is ten inches long. Get a piece of soft wood that length, an inch or more wide, and a quarter of an inch thick. An inch and a half from the end, and one-fourth inch from the edge, make a hole through this stick with a small gimlet, or with the awl; and, a half-inch further on, another. Make a like pair at the other end, and another pair at the middle. Now take the cover and advertising pages, and the little wires that hold the leaves together, from the issue for Dec. 15. Lay it, last page up, on a soft board; lay the stick on it, the edge with the holes in it parallel with the back of the magazine; and, putting the awl in the holes in the stick, punch similar holes in the paper. Lay it off, last page down, and treat Dec. 1st in the same manner, and so on to July 1st. Twelve numbers make a handy volume to bind or to read. Now cut three pieces of the wire, three or four inches long, and bend them in the shape of a double-pointed tack, the points half an inch apart and an inch and a half long. Cut two pieces of the heavy paper about 7½x10½; and, three-fourths of an inch from one edge, punch holes like those in the journals. Put the bent wires in the holes in one piece, and lay it on the table, wire points up. Then take the issue for Dec. 15th and put the wires through the holes in it, and so on until you have as many numbers as you wish to bind in one volume. Put the other piece of heavy paper on top of these, and hammer the whole down around the wires.

Don't be afraid to strike hard; get it solid, and then cut the wires down to within one-fourth inch of the book, and clinch them, bending the points toward each other. Now paste the extra half-inch of the covers over the back of the book, first one; and when that sticks well, the other; and across the back, and extending an inch or two on the covers, paste a strip of thin linen. Take the cover pages of Gleanings for July 1st, and cut off the last leaf close to the print, and another cover cut close to the print of the first page, and paste these over all, putting on the back cover first. Now put it under a press of some kind until dry; then if you want to trim the edges, and can't get to some printing-office where they always have machines to do this work, clamp the edge tightly in a vise, with a smooth straight-edged board between the jaws and the paper, and with a sharp draw-knife you can shave the solid paper almost as easily as wood. But remember that I said, a *sharp* draw-knife.

If you have handy fingers, and follow these directions carefully, I am sure you will turn out a job you will be proud of; in any event, you will have your favorite GLEANINGS in a shape to make reading and reference easy.

A good paste is gum tragacanth, softened in pure water, with a few drops of spirits of camphor or carbolic acid added, to keep it from molding. It should have only enough water to thoroughly soften it. E. J. BAIRD.

Orlando, Fla., Jan. 10.

[The method you describe is the same as that used by professional book-binders on books bound in paper, with the exception that they employ machinery, and you make use of common simple tools in the possession of most bee-keepers.]

PLANNING.

STUDYING OUT PROBLEMS IN BEE CULTURE WHILE YOU SHOULD BE LISTENING TO THE SERMON.

I hardly know whether to say that planning is one of the inalienable rights or one of the essential requisites of a bee-keeper. I have sometimes thought I should like to have every thing settled, so that I could know just what was best to do in every thing, and have no more studying or planning to do than a teamster hauling cordwood. But I don't know that I'd be happy then. I'm afraid I'd be planning how to have something else to plan about.

When do you do the most of your planning? I think a great deal, if not the most of the planning of bee-keepers, is done in bed. I judge so from so often hearing them talk about lying awake nights figuring over something, and also from the amount of night planning I have done myself. When is your best time for planning? that is, when do you seem to do the quickest and clearest work at making plans? I don't think I can answer that question so well for others; but for myself, to be entirely candid about it, my mind seems to be in the best shape for it when sitting in church trying to listen to a sermon. Please don't understand me as recommending that time for you to do your planning, nor even as saying that I ever deliberately sit and consciously spend my time planning through a whole sermon. Ordinarily I give the sermon my whole attention; and I think my pastor, if asked, would say that I was one of his helpers by keeping my eyes steadily fixed upon him. But suppose some bee-keeping problem has been in my mind for several days. I've been working hard upon it, sometimes thinking the answer just within reach, then finding myself overcome by some new difficulty. Saturday night finds me still working on it; and after going to bed I keep turning it over in my mind until I drop asleep. Perhaps I wake up in the night, and the first thing that comes in my thoughts is that problem. Just then the question comes, is it before or after 12 o'clock? in other words, is it Saturday or Sunday? If the clock doesn't happen to strike about that time to settle the question, I conclude it's better for me to go to sleep anyhow—if I can. If I wake in the morning before it is time to rise, up comes that problem; and after making an effort for some time to think of something else I arise in self-defense and take to some good reading. Then I get along perhaps all right until I get to church and get settled to listen to the sermon. Directly some word switches my mind off upon a track that leads directly to that problem, and, before I know it, I am chasing it up full speed, and am surprised to see how easily I can get over some of the difficulties that before seemed insurmountable. In a minute I recollect myself with "Hold up, there! I thought you were listening to the sermon!" and the reply comes, "Well, isn't it too bad not to follow it up when following it up a little further would finish it up, I feel pretty sure, in nice shape?" But I bring myself up with a round turn, and, with perhaps an occasional slip, let the problem alone till Monday morning, when I am likely to find myself in pretty good shape to handle it.

Now, I have a word of advice for the younger members of the fraternity. You are likely to do a great deal of planning, and more depends on the quality than on the quantity of such work. Don't decide, from what I have said, that Sunday is a better day for planning than any other. It isn't. Why, then, did it seem so in my case? Simply because for a time my mind had been kept free from that kind of work, and was rested. If I should keep to work right on through Sunday, the same result would not follow. The point I wish to make is, that you are not wise to hold your mind too closely to any plan till it is too tired to work well. Many a night I have lain thinking till too tired and drowsy to think very much about any thing, and then, having a sort of feeling that the thing must be settled then and there, have roused myself by a strong effort, only to find that I was then simply wakeful, without the power to do any good headwork.

On the whole, I think you will be the gainer to refuse resolutely to do any sort of planning after you go to bed. Just for the time, you may seem to lose by it, but not in the long run. When you find your mind tired, stop, and go at it some time again. Don't try to be too abstract in your planning. If you are planning to do something with a hive, don't tire yourself trying to imagine how such and such things will look when you have placed them so and so. Get the things right before you and it will be easier and better for you.

Before you do a great deal of planning, read up what has been done by others in the past. Not long ago a beginner showed me a house which he had built for wintering bees, and asked my opinion about it. It was nicely built, costing about $70.00; but if he had possessed himself of the books a bee-keeper ought to have, and also the back numbers of the leading bee-journals, he would have seen that he had nothing new or approved. C. C. MILLER.

Marengo, Ill., Jan. 17.

[Well, well, old friend: and is it really true that you are fighting temptation so exactly along the same line that I have been for some time past? It has been one of the mysteries to me, why my mind (or, rather, my "planning machinery") should always start with such tremendous energy just as soon as Sunday morning comes, and especially when the sermon commences. I have a great many times noticed that, when older people want to talk, say at the breakfast-table, it is just the time when the little ones, and perhaps the baby who can not talk at all, begin their prattle; and I have seen canary birds that would be as quiet as you wish until somebody commenced conversation, then they would almost split their little throats in the effort, as it appeared, to drown the conversation. The business of talking seems to be infectious. Well, in studying the matter over it has occurred to me that this involuntary thinking machinery is like the canaries and the little household prattlers. Just as soon as something of importance is going on, it just puts in its level best to be heard; and in this matter of the worship of God I am sure that *Satan* makes an effort to divert our attention and to draw us away, if possible, from holy things. *He* can not bear to see us take up the Bible. He will keep us away from church if he possibly can; and he will help us to make all manner of excuses, and he does not give it up even then. If he finds we are bound to go to church *any way*, he follows up, keeps close at hand, and just as soon as the man of God commences something that is really spiritual and elevating, then he pushes in week-day traffic. He holds up a thousand and one allurements to draw us away, if it be a possible thing, from the subject in hand, and to make us lose the great spiritual truths that have been so carefully prepared to do us good. Many and many a time I have with resolute will put away greenhouses and schemes for gardening during the Sabbath. I have said to this planning machinery, "Now, look here, you just shut up and keep still. When it comes Monday morning we will have a good time in working out these problems, and perhaps have a good time in putting them in practice; but not *another word* of it on God's holy day." Why, I have sometimes even longed for Monday morning, that I might plan and build with a clear conscience. When Monday morning came, however, the thing that looked so enticing during the sermon had little or no attractions at all, and possibly it was all dropped until *another* Sunday morning, when it was sure to start out anew. Sometimes I have been foolish enough to follow these plans out, at least somewhat on Sunday; but they never turned out well. If we are to enjoy God's spiritual gifts to the fullest extent, we must obey his holy command, and forbear not only physical but *mental* work on the Sabbath. I confess that I feel more encouraged to fight these battles when I know that somebody else has had temptations along the same line; and who knows but there are others besides Dr. Miller and myself among the readers of GLEANINGS who have like trials and temptations? Let me say to such, "Be not weary." In the 7th chapter of Revelation we have the following words: "These are they which came out of great tribulation, and have washed their robes, and made them white in the blood of the Lamb. Therefore are they before the throne of God, and serve him day and night in his temple."]

MORE ABOUT THE HONEY FROM THE CACTI.

CACTI-BLOSSOMS AS LARGE AS COWBELLS, AND HONEY BY THE SPOONFUL.

In the Dec. 1st issue of GLEANINGS, p. 858, under the heading of "One of the Cacti," Prof. Cook asks, "Who will inform us in the matter?" The readers of GLEANINGS would not, as a whole, be any more than amused were I to write up the cacti (the 31 varieties) of Arizona, and the amount of honey secreted in the flowers, from the fact that a true statement would simply be taken as a wonderful exaggeration. B. F. Johnson, of Tempe, now a resident of Mexico, tells me that the cacti in Mexico have more honey than ours in Arizona. Mr. Editor, you have long been acquainted with the pen of Mr. Johnson; and as to his truth and veracity, I leave the readers of GLEANINGS to judge, when he tells us that in Mexico some of those cacti have a bloom as large as a cowbell, and honey lying in that bloom till you can gather it up with a teaspoon. It won't be long before the readers of GLEANINGS will read, "Pure cacti honey, from the deserts of Arizona," on the eastern market. But we expect trouble in getting it on the markets, as it grains in the bloom. It grains in the hive too; and when you people strike it in the condition of Yankee maple sugar in the can, you will cry out, "Adulteration !" But, buy just a little; try it; and next time you will hunt the market for Arizona cacti honey. GEO. K. MILLER.

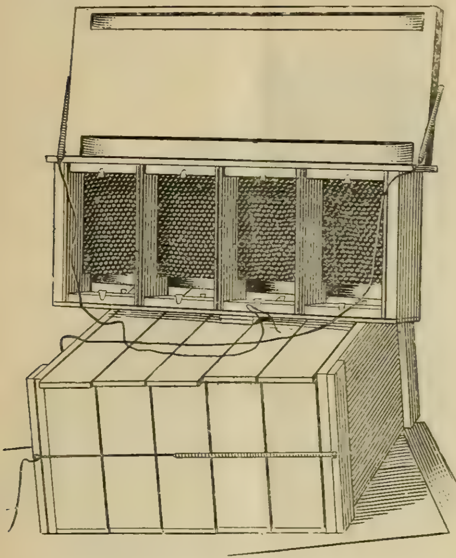
Tempe, Ariz., Jan. 11.

[Thank you, friend M. In passing through Arizona, nothing, perhaps, interested me more than the wonderful class of vegetation you have mentioned. It was not the time of flowers when I was there, but the fruits not only interested me but refreshed me greatly. I looked over in the direction of Mexico, and longed for liberty to go down and investigate. Providence permitting, may be I shall some time have that pleasure.]

SURPLUS ARRANGEMENT.

DOOLITTLE'S METHOD OF SECURING COMB HONEY.

As we go back over the past in memory, we can not help seeing the great strides made in bee-keeping during the last thirty years. We have many new things to-day that were hardly thought of at that time, such as comb foundation, the honey-extractor, queen-excluding metal, etc., which are often mentioned as the "great advancements;" but it seems to me that the improvements regarding some of the things that were used thirty years ago should call forth our admiration fully as much as do the many new things. I think, in no other one thing has the advancement been any greater than in our mode of taking comb honey. Thirty years ago the smallest section, or honey-box, as it was then called, held six pounds of honey, or thereabouts, the same having three combs. Soon followed the two-comb box, then the one-comb box, next the two-pound section, the 2½-pound section, the one-pound, and finally from the half-pound down to the Harmer two-ounce package, all coming in rapid succession, when a want for any or all of these was felt. Well, with the advent of sections came the want of something to hold them, keep them clean, etc.; and many have been the inventions for this purpose, such as wide frames, single and double tier; honey-racks, crates, T supers, etc., all of which have had their advocates. After testing many of these different arrangements I decided on the one-tier wide frames as being the best; and in using them I adopted the plan known as "side and top storage combined," with which I was very successful for many years. I never did like the tiering-up plan, used so successfully by many, for the reason that, in this locality, it so often happened that the season would close before many if any of the sections were finished, leaving me with a large lot of unfinished sections on hand, with few if any completed for market. With the side and top storage plan I could take the sections off the top as fast as finished, raise the partly finished ones from the sides to the top, and, by putting in empty sections at the sides, keep the bees on new work there and finishing it on top. When the season drew toward a close, no more was put in at the sides, and thus I had nearly all the sections which were used during the season finished at the end of the honey harvest. In this way remarkable results can be secured; in fact, I do not believe there is any other plan known whereby as much nice white comb honey can be obtained as by the above, where any one has the time to carry it out; but it requires time and close attention to all of the minute details connected with it.



DOOLITTLE'S SURPLUS ARRANGEMENT.

While I sometimes think that enough more honey can be obtained to pay for all this extra trouble, yet of late I have adopted a somewhat different plan whereby nearly if not quite as much honey can be obtained with much less work; and for want of a better name I have called it "the lateral plan." Before adopting this lateral plan I obtained and tried nearly all of the different cases and supers in use, and, after a careful testing of the whole, I came to the conclusion that, taking all things into consideration, this had more advantages and fewer disadvantages than any of the others. That the reader may know just how the wide frames are used by this plan I have had an engraving of them made, so as to save the talk necessary in telling them what I wish to.

My hives are all chaff hives, and I use on each, when working for surplus honey, a queen-excluding honey-board, which extends out over the chaff at either side of the brood-chamber, so that I can put on from three to ten of these wide frames, just as I wish. On most of my hives I place five wide frames at the beginning of the season, fixed and held together as shown in the lower part of the cut. The center wide frame contains sections with combs left over from the previous season, used as "bait" sections; and as these go directly over the center of the brood-nest, the bees go to work in them at once as soon as there is any honey coming in from the fields. As soon as the bees get well to work in these five wide frames I load my wheelbarrow with wide frames, having sections filled with foundation, as shown in the center of the engraving, and, arriving at a hive, I unwind the string from around the flat-headed nail, shown at the left of the lower part of the engraving, which allows the coil-wire spring to assume the shape you see them at the top part of the cut, when the wide frames can be handled as I please. Instead of handling them as some do, putting the added wide frames between the others, I simply take off the side board and add wide frames to each side to the amount needed, when the side boards are placed back, the springs drawn to a strong tension, the strings wound a little more than one turn around the nail-heads to hold them, when I am ready to move on to the next hive. In a week or so I start out in the same way again. I now find from one to five frames of sections finished, out of those put on at first, which are taken off and the bees shaken off the four sections by taking hold of the projecting ends of the wide frames, the same as they are shaken off from a brood comb. The remaining wide frames of unfinished sections are now drawn together over the center of the brood-nest, when the necessary number of wide frames of sections is added to each side. In this way I keep working till the season begins to draw toward a close, when, instead of adding more sections at the side, the unfinished ones are drawn together, so that at the end of the season I have no more unfinished sections than I wish as bait-sections to commence the next year with. In this way the bees are kept at work in a natural manner, building their comb outward all the while, and finishing their work at the center, which has a tendency to reduce swarming, and give a greater yield of finished honey than by any other method with which I am acquainted. The plan also allows of adjusting the amount of surplus room to the wants or size of the colony, so that no colony is discouraged by too much surplus room being given at first, and none are crowded for want of room. It also keeps the wide frames drawn tight together at all times, so that, as the lumps of propolis soften with heat, which may be on the wide frames or sections, the slack is always taken up; and they can be tiered up by those who wish to tier up, by simply making suitable slots in the tops of the wide frames, like those in the bottom—reversed or handled as a whole, cost little if any more than any good arrangement for surplus comb honey; and as a whole it takes no more time to prepare and manipulate them and the sections than it does any other *first-class* arrangement; while the sections are kept almost entirely free from propolis. If the reader will refer to the upper part of the cut he will see how the propolis trouble is obviated on the outside of the outside tier of sections, where the greatest annoyance comes by way of propolis, where the outside sections are clamped against any flat surface. A rubber band or a wire, or even a string, can be made to answer in place of the springs; but as they cost only 25 cents per dozen, and are so much better than any thing else, they are much the cheapest in the end. I still use 1¼-pound sections, the same being two inches wide, and glass all my sections. This will help the reader to understand the cut better. As long as these 1¼-lb. glassed sections find a ready sale in our Eastern markets at the same price as one-pound sections unglassed, I shall continue to use them; but I am always ready to accept any real improvement as soon as I find it out.

G. M. DOOLITTLE.

Borodino, N. Y., Feb., 1891.

[Friend D., you will, by your plan of working, get nicer honey than by the usual way of letting the cases remain on the hive until they are all sealed. But you will also have more labor, I think, than by some of the other methods that do not give as nice a product. Then the question is, "Does the extra price received pay for the extra amount of work?" For a market that wants nice glassed sections, I am inclined to think it does; and if you can arrange things so as to make your way of taking out all sections, as soon as finished, but little if any expense, more than the other way, you certainly are ahead. I believe the best results will also be obtained by having a spring, or some equivalent, to constantly pull the sections (and wide frames if they are used) tight up against each other.]

THE SPIDER-PLANT.

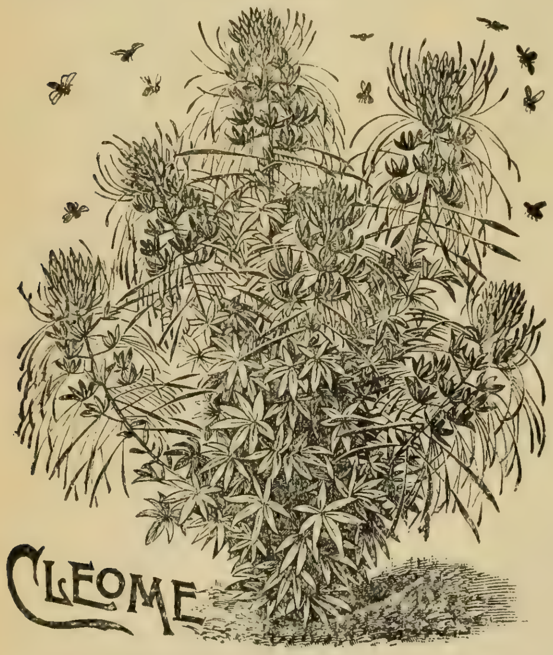
NEW ENGRAVINGS FOR THE A B C OF BEE CULTURE.

By Ernest R. Root.

While looking over the seed catalogue of one of the prominent seedsmen, W. Atlee Burpee, we ran across a very accurate engraving of the spider-plant—the best representation that has ever been made, so far as I know. As we are now revising the A B C of Bee Culture, making new engravings and such other improvements as will make the work more valuable, we concluded to re-engrave it; and for the benefit of our journal readers I here submit it.

The bees on the wing, going to and from the blossom, is characteristic of their behavior toward the plant. But there is just *one* thing that the cut does not show, and that is the little drop of honey sparkling in the blossom, but which the reduced size makes it impossible to show.

Aside from being a honey-plant, spider-plant is one of the most ornamental shrubs ever placed in a flower-garden, and so advertised in Burpee's catalogue. As we state in the A B C book, it is not of sufficient value to a bee-keeper, however, to warrant planting them on a large scale. But a few of them will adorn the dooryard, and give you a chance to see how the bees fairly swarm upon the blossoms. Those large crystal drops of nectar and the greed of the bees in the early morn, is a sight to behold.

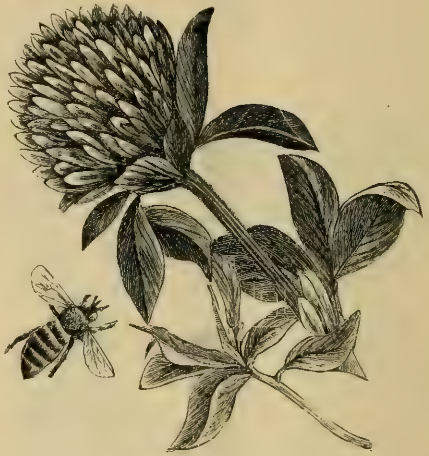


CLEOME PUNGENS, OR SPIDER-PLANT.

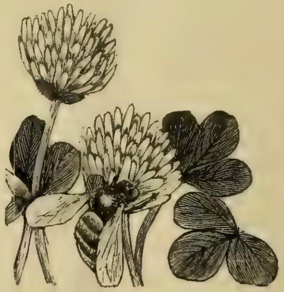
RED AND WHITE CLOVER.

☞ While I am about it, I might as well present you with two engravings that we have adapted for the A B C book.

If we could give the appropriate colors to the blossom and stem, we should have a well-nigh perfect representation of our common red clover. The stem has the usual characteristic fringe of hairs, and the shape of the leaves is also characteristic. It may seem to some of our readers almost unnecessary to represent any thing so common; but there are places where even red clover does not grow; and for the benefit of the bee-keepers who are unacquainted with it, I am glad to show them what it looks like. Perhaps I should remark that peavine clover is just the same, only the stems are much longer.



COMMON RED CLOVER.



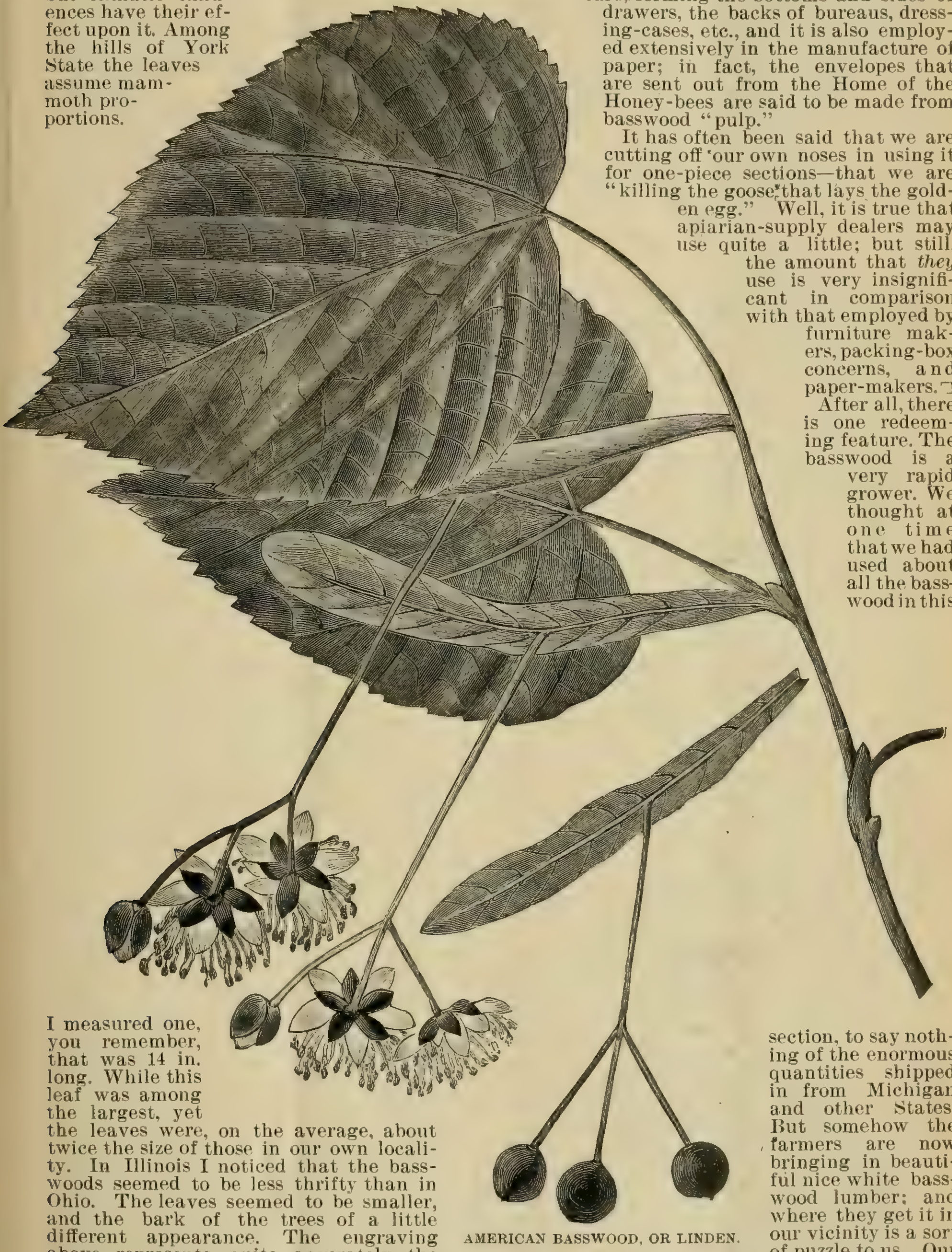
WHITE CLOVER.

☞ This engraving shows the most valuable of all honey-plants to the bee-keeper. Without it, bee-keeping in the United States and Canada would assume hardly half its present proportions; and but for it we should be without one of the finest honeys in the world—the very finest, if we except the alfalfa. Our artist, it seems, caught a bee while in the act of appropriating the delicious nectar.

BASSWOOD, OR LINDEN.

By the by, we have also had another engraving of basswood made expressly for the A B C book; and its importance as a honey-plant is second only to the white clover as above.

Our artist, who was looking over some beautiful plates in a standard work in one of our public libraries, accidentally ran across a representation of basswood. It was so accurate that we instructed him to copy it, as faithfully as he could, by a wood engraving, and we give the result below.



AMERICAN BASSWOOD, OR LINDEN.

The same thing is what the Canadians call "linden," and we across the line, as a general rule, term it *basswood.* There is no difference, but climatic influences have their effect upon it. Among the hills of York State the leaves assume mammoth proportions. I measured one, you remember, that was 14 in. long. While this leaf was among the largest, yet the leaves were, on the average, about twice the size of those in our own locality. In Illinois I noticed that the basswoods seemed to be less thrifty than in Ohio. The leaves seemed to be smaller, and the bark of the trees of a little different appearance. The engraving above represents quite accurately the typical forms, however. The European variety has smaller leaves, and differs from *Tilia Americana* in a few other minor respects.

It is rather to be regretted that this tree is not more plentiful than it is. It is one of the main stays, where it grows, of the honey-producer, and one of the most valuable woods in manufacture. It will hardly do for outside exposure to the weather; but it is admirably adapted for packing-boxes, and is used in *immense* quantities in the manufacture of furniture, forming the bottoms and sides of drawers, the backs of bureaus, dressing-cases, etc., and it is also employed extensively in the manufacture of paper; in fact, the envelopes that are sent out from the Home of the Honey-bees are said to be made from basswood "pulp."

It has often been said that we are cutting off our own noses in using it for one-piece sections—that we are "killing the goose that lays the golden egg." Well, it is true that apiarian-supply dealers may use quite a little; but still, the amount that *they* use is very insignificant in comparison with that employed by furniture makers, packing-box concerns, and paper-makers.

After all, there is one redeeming feature. The basswood is a very rapid grower. We thought at one time that we had used about all the basswood in this section, to say nothing of the enormous quantities shipped in from Michigan and other States. But somehow the farmers are now bringing in beautiful nice white basswood lumber; and where they get it in our vicinity is a sort of puzzle to us. Our superintendent, Mr. Warner, assures me that at least some of this lumber is from a second growth of trees that sprouted ten years ago from the stumps of old trees—said trees having been cut for us ten years ago. *If* basswood will replace itself in ten or even twenty years, so that it can be used again for lumber, there is yet hope that it may continue to bless the bee-keeper.

There is one thing certain—that basswoods do not do nearly as well away from the shade of other trees. In our basswood orchard there are trees that are protected by some large oaks, that made a growth from three to four times as large as those out in the open field. Those trees that are in the shade of our factory are much more thrifty than those along the road-side without the shade of buildings or of other trees.

THE NEW YORK STATE BEE-KEEPERS' CONVENTION.

NOTES, BY ERNEST.

On the morning of the first day it rained furiously, and the streets of Albany were literally puddles and streams of water—so much so that it was very difficult for a pedestrian to make his way from one point to another without getting wet feet. When I registered at the Globe Hotel I looked to see whether I could find the names of any bee-keepers I knew which were recorded before mine, but nary a one. I was afraid the large amount of rain the night previous would dampen the spirits of a great many who possibly had thought of coming. In fact, after breakfast I sat down in the hotel and waited for the bee-keepers to come in.

While thus employed, my thoughts reverted to the time when, last fall, I had arrived at this very same hotel after a bicycle run of 50 miles. I came in, I remember, muddy, wet, and tired, and my clothing was somewhat torn by the effects of that bulldog encounter, an account of which I have already given. For curiosity I thought I would ascertain whether the clerk remembered me. "Oh, yes!" said he; "you are the chap who came in so dilapidated from that fifty-mile run through the mud from Durham. I could not forget that."

He was very glad to see that I had survived the journey, and inquired whether I expected to take a similar run again.

"Never," I replied, "over such roads, nor through such mud, and, much less, by the house of the box-hive bee-keeper who owned that ferocious bulldog."

After a pleasant chat with the clerk I asked where to take the electric motor over to Troy. "Just a couple of blocks down the street." A ride on the electric car brought me to Troy. I made a short visit with relatives, and then returned to Albany and thence to Agricultural Hall. I inquired of the janitor where the bee-keepers' convention was. *He* hadn't seen any bee-keepers. He was told that they were to occupy *that* hall, pointing to an unoccupied room on the second floor. As I looked out on the streets running with water, I concluded that York State bee-keepers had become discouraged—even the president and secretary. Pretty soon, in came a gentleman, and after a little I began to inquire whether *he* knew any thing about a *bee*-convention in that building. No. He had been looking for the same thing all the afternoon. We "exchanged our identity," as the Rambler puts it, and fell to talking about bees, as to how they would winter, etc. I am such a poor hand to remember names that I can not now even remember who he was. "At any rate, I wonder what is going on in that room down there," I said, pointing downstairs. "I saw a couple of men go in a moment ago." I inquired of the janitor, who said it was an *agricultural* meeting. "I don't care very much about agriculture," said I, turning to my friend, "but let's go in and see what they are doing." Cautiously I opened the door, and, presto! there sat President Elwood in the chair, the secretary at his table, and a whole convention of *bee-keepers*. In various parts of the room were familiar faces whom I first met on my bicycle tour. My first thought was, "Why in the world didn't you people have a sign out and let folks know where you were?" I learned afterward that the place of meeting had been changed to another room—a room that had previously been occupied by an agricultural meeting; hence the janitor's mistake.

ARTIFICIAL PASTURAGE.

I arrived just in time to hear the discussion in regard to artificial pasturage. Among the plants discussed were the Chapman honey-plant, alfalfa, and sweet clover. The reports in regard to the first named were not very favorable. It seemed to be remarkable as a yielder of nectar, but its difficult propagation renders it impracticable for bee-keepers at large. George H. Ashmead had sown the Chapman honey-plant seed broadcast by moonlight.

"Why did you do it after dark?" some one asked.

"Oh! I did not want everybody to know what I was doing. It has not been called a bad weed; but some folks, if they had seen me sowing it, would have declared that I was sowing something that would work mischief to the farmers. But there was not one of those seeds that ever came up."

Mr. Thomas Pierce, of Gansevort, had tried sowing sweet clover, but none of it came up. Referring to the moonlight sowing, he banteringly said he would have some compunctions of conscience. That did not distress our friend Mr. Ashmead at all. He sowed upon waste places. He knew that the plant was not a bad weed, and he was not going to give his neighbors even a *chance* to think so. In regard to sweet clover, he had seen dirt thrown from the bottom of a well 30 feet deep, and sweet clover and mustard started from it.

The discussion then turned to alsike. In some parts of York State the farmers were introducing it, at the advice and suggestion of bee-keepers. In some cases they like it, and in some they don't. Where they did not take to it, it was ascertained that it grew up rank, and then rotted and died. It was recommended by some that it be sown with timothy or red clover. It is then not apt to lodge, and it makes a fine growth. Testimony was not wanting, to the effect that it is a splendid honey-plant—superior to ordinary white clover; and, as somebody said, "Bees work on it immense."

George H. Ashmead said that the farmers were going back on alsike in his locality. They complain that there is no after, or second growth. He thought that, if he could get them to sow it early enough, they would have two crops. Another thing, farmers complain that alsike turned their butter white. They had tried it, pasturing their cows two weeks on alsike and two weeks on white clover. The alsike, every time, they reported, would turn the butter white. When cows were pastured on common red clover the butter resumed its natural color. But there was one strong point; and that was, that alsike hay will not give horses the heaves as does red clover. Alsike has no fine fuzz that rattles down through the hay.

J. C. Stewart sells alsike seed to farmers, and distributed Mr. Newman's alsike pamphlets; and he discovered that the pamphlets helped to sell for him a good deal of the seed, besides giving him a little larger percentage of honey.

It was generally agreed, that, where farmers do use it, they regard it as the finest hay in the world. Mr. West said that his cattle would paw through the snow to get at it—a thing they would not do for any other clover or vegetation.

Referring to the scattering of seeds by the roadside or upon other waste places, President Elwood thought, as a matter of expediency and abstract right, we should be careful not to scatter upon the lands of others. We have a perfect right to do it on our own ground.

Somebody asked why clover seemed to yield honey at some times and not at others. Mr. W. L. Coggshall said that, if the atmosphere is right, we get honey; but if not, we do not, that's all.

Evening Session, First Day.

The matter of the use and abuse of foundation was brought up. Some argued that we were using too much, and that only starters, even in the brood-frames, were more profitable. There were not wanting others who insisted that they wanted full sheets every time. Mr. Ashmead thought that a good deal depends on how we work the bees, and the time of year in which the foundation was built out.

WIRING FOUNDATION.

As is usually the case, a good many wired their combs and they could not get along without it; and a good many did not wire, and could not see the need of it. The latter, as a general rule, seemed to be those who do not move their bees very much. W. E. Clark wired his frames horizontally. I asked him how it could be done, and not have the combs wavy. W. L. Coggshall replied by saying, "Don't stretch the wires too tight."

Our genial friend Mr. J. VanDeusen, of Sprout Brook, N. Y., who turns out that beautiful flat-bottomed foundation, was present, and he was called upon. He did not see the need of wiring *frames* at all; but he would use the light-weight brood foundation wired—that is, wired in the foundation. This prevents all sagging, and his customers, as a general rule, seem to be pleased. I noticed that a good many nodded assent, and I was surprised that there were so many large bee-keepers who use the flat-bottomed article. They like it, and prefer it to the natural base.

The discussion finally turned as to how to fasten foundation into sections. Almost every bee-keeper had a little different method, and *his* method, of course, was the *best*. After resolving it down, I found that the methods of all could be classed under two heads—those who use the melted-wax plan, and those who use a machine whereby the edge of the foundation is pressed into the wood. W. E. Clark, of smoker fame, had bought one of Bro. Root's Gray machines. He liked it very much. He subsequently purchased one of his improved Clark machines, and that was very much better yet. This machine was simply perfect, and with it he could put in foundation as fast as he could count.

Mr. Thomas Pierce, N. D. West, and quite a number of others, used the melted-wax plan, and they could do it very rapidly. They did not see the need of any machine to do it with. They just dipped the edge of the foundation into some melted wax, and then quickly set it right down in the section. Mr. Charles Stewart had used both the improved Clark machine and the melted-wax plan. He had got well used to both ways, but preferred the melted-wax method. He could do it a good deal faster and a good deal better. George H. Ashmead and several others nodded assent.

Some one asked whether the three-cornered starter was as good as full sheets. W. E. Clark answered that "climbers," as they are called, are not as apt to be built clear out to the edges of the sections as full sheets of foundation. There seemed to be a general agreement on this point.

Morning Session, Jan. 24.

"Shallow versus deep brood-chambers; narrow spacing and fixed distances," was the topic of a paper by Mr. Noah D. West. "Narrow spacing," he said, "is something less than 1½ inch. We want that spacing that will give us the most brood." His experience was in favor of 1⅜. As to bee-space, $\frac{5}{16}$ has the preference; but he admitted that he had burr-combs, and had to use honey-boards.

"DO WE WANT FIXED DISTANCES?"

"Yes, sir," said he; and he gave me a sly twinkle as he peered over the edge of his paper. Twenty years ago he began using the Quinby-frame hive. He now uses ordinary hanging frames spaced with wire nails driven into the sides; and on some accounts he liked them very much, but they were unhandy for extracting. He exhibited a modification of the Hoffman frame which he preferred. This had straight tob-bars, and the end-bars were enlarged toward the top. As to deep frames, the bees did not breed up soon enough in the spring. He referred to the fact that he was obliged to use a honey-board on account of burr-combs; but he would like to dispense with it, as he observed that bees did not enter the sections as readily as when they were out.

Several intimated, at the close of this paper, that the reason he had burr-combs was because his bee-space was too large. Mr. Scofield said, "Use a top-bar one inch wide, with a bee-space above $\frac{4}{16}$ inch, and you will have no burr-combs." Several others put in that they wanted $\frac{4}{16}$ *scant.*

As to the matter of deep or shallow frames, a considerable number seemed to prefer the Quinby depth, although there were not wanting those who thought they could do just as well with the L. frame, one of them being prominently Mr. Scofield. Mr. Elwood had been around considerably in the spring of the year. His observation was, that bees were doing their best on the deep frame. They would winter just as well on the L., but they would not breed up quite as well as they would on the Quinby depth. Mr. Coggshall said the reason was, deep frames have more honey in them; and this honey is directly over the bees, not off at one end. The more honey *over* the bees the better they will breed.

Mr. Ashmead thought the bees bred equally well in deep and shallow frames, but he preferred the L., for the bees go into sections earlier; and I noticed that several nodded assent to this. As to fixed frames, there did not seem to be very much disagreement on this point. Most of the bee-keepers present seemed to prefer them. Mr. W. L. Coggshall, an extracted-honey man, and one of the largest bee-keepers in the State, however, does not use them and does not want them, neither does Mr. Thos. Pierce. Quite a number testified in favor of the Hoffman frame, and there were not wanting those who preferred the Quinby. But there was one man in the convention, Mr. A. E. Woodward, of Grooms Corners, N. Y., who had used 2000 Hoffman frames, and had now discarded them all for the plain loose hanging L. frame. Quite a number looked over toward me with a comical twinkle in their eyes, as much as to say, "There, young man, how does that strike you?" I asked our friend why he discarded them. One reason was, the bees would propolize in between the uprights. Another reason, the brood did not seem to be built out along where the end-bars began to enlarge toward the top. I then called upon several of the closed-end-frame people, and asked them if they had had any trouble about brood being built out the length of the end-bars. They had experienced no such trouble. Another reason why our friend had discarded them was because he could not alternate the frames. Again I called for the testimony of the closed-end and Hoffmen men. Neither had they experienced this trouble. But for all this, I am very glad to give this testimony right here, because it shows that not every one will be pleased with the Hoffman frame; and I hope that some of the enthusiastic admirers of them—those who have not yet tried them—will be a little slow in giving them too extensive a trial.

I would say right here, by way of parenthesis that I do not want any of our friends to think I do not welcome adverse testimony to some of my "pet ideas," as some might call them. I am exceedingly anxious that both sides shall come out.

Somehow or other this matter of cellar versus outdoor wintering came up. Mr. Ashmead said, that, with an apiary of 100 colonies, he could save, by wintering in the cellar, from 500 to 700 lbs. of stores. I told Mr. Ashmead, that, if he lived in a locality where the winters are rather more open, he would not notice this difference in results. In cold localities there is quite a saving in wintering in the cellar. In warmer localities, say in about the latitude of our own, the difference is not very great; although I have noticed that there is a slightly less consumption, even in Medina, of stores per colony, in the cellar.

A paper from Dr. Tinker was read, on the subject,

"ARE WE READY TO ADOPT A STANDARD FOR THE AMERICAN ITALIAN BEE? IF SO, WHAT ARE THE DESIRABLE CHARACTERISTICS?"

Taking it all in all, the matter was well considered. The doctor alluded to the fact that, up to the present time, the three yellow bands seemed to be the only standard of purity for Italians. But Cyprians and albinos have come in; and for their crosses we need a little different standard. But little has been said of the color of the *hair*. The doctor thought the best strains have white hair. The white hair shows black blood with the bad weeded out. The yellow hair shows that the pure Italian blood has the predominance. He called attention to the fact that, in making exhibits of choice bees, the judges have no standard from which to make their awards of premiums, and he recommended that the association adopt some standard.

W. E. Clark is one of those dry jokers in conventions, and generally makes a pretty good point. He thought it might be all well enough to make a standard for show; but what he wanted was bees for *business*. He had a cat at home that he would not trade for any ten other cats he ever saw. She is a splendid mouser, and kept the premises clear of the rodents; but a very homely cat was she, and neither had she any distinctive markings or fine pencilings. He also had an old speckled hen that he would not trade for any other hen he ever saw. She was a cross between several other strains; but she would beat any well-marked pure-blood in egg-laying that he ever had. He also had some bees that were splendid workers, but they were not very fancy in color. "This standard business," said he, "is just for exhibition. These standard hens and standard cats and standard bees, with just so many shades or markings, do not amount to very much for business."

Mr. Knickerbocker agreed, and further said he had carefully tested these golden-yellow bees. The honey that they gathered had a water-soaked appearance, and he thought they were not as good workers as his leather-colored strains. He emphasized the point that he preferred bees for business.

Mr. Elwood and Mr. Hershiser, however, insisted that it was necessary to adopt a standard for *exhibition* purposes, and that Dr. Tinker's point was well taken. Mr. Elwood said that, if he ordered an Italian bee, and got a hybrid, he would be disappointed. He wanted to get just what he ordered, as to markings, no matter whether the hybrid would be a good deal better bee for business than the regulation three-banded Italians or not. Our judges at honey shows he thought should have some standard whereby they can mark the bees. As it is, there is a good deal of complaint in regard to the way bees are awarded premiums by the judges.

Afternoon, Second Day.

We first listened to a paper by President Elwood. It discussed the poor season, and its causes. A full crop of honey, as a general thing, means a good crop of grain. The fertilization of blossoms by bees is certainly necessary. As to out-apiaries, we should be a little cautious about advising everybody to start them. If a small business does not pay, then a larger one will not. There are some who have a capacity for running a series of apiaries, and there are others who have a capacity for running only one small apiary, and sometimes poorly at that. He lamented the fact of raw sugar having been placed on the free list, and a bounty of two cents a pound being paid on all produced at home. He was not certain just what effect this would have on the honey-trade, but he thought it would work injury. Bakers and confectioners had been using cheap honey, but now they would be likely to use sugar. He thought there was a need of bee-keepers adopting some sort of trade-mark, and that the Honey-producers' Exchange should by all means be continued. The Honey Statistics in GLEANINGS had been sent out free, and had rather conflicted with the operations of the Honey-producers' Exchange, whose bulletins were sent out to members only. As to the Columbian Fair, the bee-keepers of New York should make some arrangement to make an exhibit; but if the managers were to open it on Sunday he recommended that the bee-keepers of York State let it severely alone. I was pleased to notice the general assent to this point, shown in the faces of those present. The discussion of the paper was not brought up at that time, but it was considered later in the form of committees.

Evening Session, Second Day.

The evening session was given over to the commission men, and two papers were read. Both were so valuable and so vital that I am glad to give them entire—not that the other papers in the convention were less valuable, but because the commission men have had but comparatively little to say to the honey-producers. The first paper, by F. B. Thurber himself, was read by a representative of the great firm of Thurber, Whyland & Co., of New York. It is as follows:

THE INFLUENCE OF FREE SUGAR ON THE CONSUMPTION OF HONEY.

After April 1st next, the present duties on foreign sugar, which average 2¼ cents per pound, will no longer be imposed, and a bounty of 2 cents per pound will be given to domestic producers of sugar, which includes the cane sugar of Louisiana, the sorghum and beet sugar of the Western States, and the maple sugar of the East. This will undoubtedly stimulate production in these lines, increase the supply of sugar, and largely decrease the price, although, with low prices, consumption will be larger, and there will be doubtless more or less fluctuations in price, due to this cause.

Just how much lower sugars will be on the 1st of April than they are at the present time, it is impossible to say; but probably not less than 1½ cents a pound, or, say, about 4½ cents a pound for granulated sugar at wholesale.

What influence the cheapness of other sweets will have upon the consumption of honey, is a difficult thing to estimate. Honey is an article distinctive in character, appearance, and flavor. People who are accustomed to using honey want honey and will have it, unless prices should be held at exorbitant figures; but as cheap sugar will undoubtedly stimulate the production and consumption of attractive fruit-preserves in this country, just as it has in England, and the manufacturers of these preserves will undoubtedly continue to advertise and push them, it will have some influence on the consumption of honey.

I would advise a continuance of the same intelligent study of the business that bee-keepers have given it in the past. I know of no line of business that has received more careful or studious attention than your business has during the past few years. Every suggestion made by distributors of your product, tending to make it more attractive and convenient for consumers, has been met, and the little busy bee has been educated to work in a form calculated to extend the consumption of his product.

I have always felt much interest in apiculture; and the Thurber-Whyland Company, of which I am president, will be glad to do all in its power to forward your interests. With regards and best wishes, I remain

Faithfully yours,

New York, Jan. 20, 1891. F. B. THURBER.

The second one was read by Mr. Segelkin himself, and is as follows:

SHIPPING AND GRADING HONEY.

Mr. President and Gentlemen: — I welcome this opportunity with great pleasure, and will describe, as definitely as possible, *what our market demands.* It is certainly to the interest of the producer to put his product on the market in the most attractive and salable style; and we, as the sellers and distributors, are naturally in a position to know exactly the wants of our market. Receiving comb honey in large quantities from all the honey-producing centers throughout the country, we get it in all styles and shapes, and, in many instances, we find there is room for vast improvement and changes. In these days of sharp competition in nearly all the branches of industry, it has been found necessary to put the goods on the market in very attractive style. This is mainly the case with all kinds of food products, such as canned goods, preserves, etc., all of which are handsomely labeled; and those which are put up neatest will find the quickest sale. The consumer will always buy that which looks the most appetizing. As these facts can not be denied on staple goods, it is all the more necessary to use the utmost care in putting up comb honey in the most attractive style, because this is regarded as a luxury—if not altogether, certainly to a very large extent.

We give due credit to a large number of our shippers who are up to the times, and who put their honey up in first-class style. Their goods always find ready sale at the highest market prices. If they do not sell their product outright, they are sure of receiving returns within a short time, and need not fear having their honey carried for months or carried over the entire season. We very often receive comb honey which is put up in bulky, awkward crates, not even glass on the side of the crates, the combs built without separators, so that it is almost impossible to take the combs from the crate without injuring them. Such goods do not compare favorably with first-class ones. They find but slow sale, and prices have to be shaded considerably to move it off. Still, these shippers generally expect highest prices, and are very often dissatisfied and disappointed with the returns, when the fault lies with themselves only.

SINGLE-TIER CRATES RECOMMENDED; MARKING WEIGHTS.

For one-pound sections we recommend a single-tier crate holding 24 or 25 sections. While we are not opposed to the double-tier crate, we believe the single-tier is the more desirable—at any rate, for unglassed honey. If some of the combs in the upper tier start to leak, they will drip over the combs in the bottom tier and soil the whole crate.

We often receive comb honey which is not weighed at all. Others have only the gross weight marked on the crate. Again, others have gross and tare, but *not* the *net* weight; and, again, some is marked in such small and faint figures that the marks are scarcely legible.

We received one lot this season in paper boxes, which we supposed was not weighed, as it did not bear any marks, nor could we find any marks as to the grade of the honey. To determine which was first and second grade white and buckwheat we started to open up the crates. Under the cover we found a slip of paper, stating the quality and weight. What the shipper's reason was for putting the marks under the cover, we are unable to say. No doubt he thought it the right way to do.

Very often the shippers will figure the weight down to ounces, and mark the crate, for instance, "Gross, 28:06; tare, 4:04; net, 24:02." These two ounces we have to throw off every time; in fact, in some cases we are compelled to throw off quarters in order to effect a sale. All this can be and should be avoided by the shipper by simply changing some of the combs, until the crate will weigh an even pound or half-pound; and by doing so he will receive pay for *every ounce of honey.* We would recommend putting *only* the *net* weight in plain figures on the *end* of the crate.

For glassed or unglassed honey we advise the use of heavy paper in the bottom of the crates, turned up about half an inch on the four sides. If some combs should be broken down, this will prevent the honey from leaking through the crate. In addition to this it would be advisable to lay strips of wood about ¼ inch thick on the paper, from side to side, for the combs to rest on. This will prevent the honey which has leaked down from broken combs from soiling the good combs. Of course, it is not necessary to go to this trouble when the honey is shipped in paper boxes.

PAPER BOXES FOR COMB HONEY; FOLDING STYLE NOT RECOMMENDED.

For a paper box we recommend those now used by nearly all the largest producers, who use a paper box called, we believe, the original Scofield box, of which you will find samples on exhibition. It is made of heavy pasteboard, and is strong enough to prevent breakage unless the honey is handled unusually rough. This box is the best ever adopted, and has the preference in our market. We receive honey in many other styles of paper boxes, but none of them take as well. Take the folding box, for instance, which is also largely used, and made of light paper instead of pasteboard. These boxes are not strong enough, and the majority of them will tear by trying to take the combs out of them. You can convince yourselves by samples on exhibition.

Where honey is put up in paper boxes we would advise using a single-tier crate holding 24 sections 5 by 5. The middle section on each side of the crate should be glassed, to show the quality of the honey. Honey put up in this style, clean white crates, and boxes neatly labeled, will always sell at highest prices.

WHAT PROPORTION OF COMB HONEY SHOULD BE GLASSED AND PUT IN PAPER BOXES?

The next important question is, "What part of the honey should be sent to market in paper boxes—glassed or unglassed?" Up to last year we have said, about one-third of each kind, as the demand was about equally divided. We now say, 50 per cent glassed, 30 per cent paper boxes, and 20 per cent unglassed, as nearly as we are able to estimate. During the season of 1889 we had more demand for glassed honey than for unglassed or paper boxes. We thought, that perhaps that year was an exception; but we have had *more* calls for glassed honey this *last* season than the *year before*, and the demand for the same is fast increasing. We could not nearly fill orders this year, and could have sold thousands of crates more. We tried to substitute paper boxes and unglassed honey, but the trade would not have it in place of the glassed honey. We are of the opinion that this demand for glassed honey will be permanent, and we would therefore advise producers to glass more of their honey.

GLASSED HONEY RECOMMENDED.

It is certainly more profitable to glass the honey than to ship it unglassed or in paper boxes. The producer receives the price of honey for every ounce of glass; besides, glassed honey will bring better prices than unglassed, and as good a price as paper boxes. The reason why glassed honey has the preference seems to be that the retailer can take every comb from the crate and make a handsome display of it. This, of course, can also be done with the paper boxes, but the glass will show up every comb. The dust can not settle on the honey, and the glass will prevent curious and inquisitive customers from sticking their fingers in the comb.

KIND OF SECTIONS TO BE USED FOR GLASSED AND UNGLASSED GOODS.

Next comes the kind of section to be used. For unglassed or paper boxes, it does not matter which one is used—nailed, dovetailed, or one-piece section. For glassed honey we should say the nailed or dovetailed section is the most desirable, as the one-piece section does not seem to be strong enough to be glassed. Some producers will fasten the glass to the section with small tin tags; others with small wire nails; and, again, others will glue them. Any one of the methods will answer the purpose, if properly done. If glued, a glue should be used which will stick and hold the glass to the section. We sometimes receive shipments of glassed honey glued; and, as soon as touched, the glass will fall from the combs, and very often hurt the sale of the honey.

PROPER WEIGHT OF SECTIONS.

Another item of great importance is, to have the sections weigh not over one pound each, but less if possible. Our market demands light weights at all times, be the honey glassed, unglassed, or in paper boxes. The two latter generally weigh a little less than a pound, while glassed sections, in many cases, will weigh over a pound, especially if the standard section is used, 4¼x4¼x1¾. We would advise producers to cut down the section in width and adopt a narrower one, say 4¼x4¼x1½ or even 1¼; so, when glassed, the section will not weigh over 14 to 16 ounces. Heavy sections are generally rejected, and we find it slow work in moving them off.

GRADING HONEY.

We would call your special attention to the grading of the honey, which is as important a question as any of the former, and in which not too much care can be taken. Very often we receive honey which is not properly graded, and off grades mixed in with the first grade, and marked, "Not white honey." The outside combs will appear all right; but inside of the crate will be the poorer grade.

We can not take the trouble to open and examine every crate and comb, but have to rely on the shipper, and go by the mark and the appearance of the crate. We sell and ship the honey; and the first thing we know, the party who bought it will complain about the quality, and hold the honey subject to our order. Here we have the alternative, either to have the honey shipped back to us or make an allowance satisfactory to the buyer. This is certainly not very pleasant. It hurts our reputation, and we are apt to lose that customer. Not only this, but the shipper is also dissatisfied, as generally *he* expects the highest market prices, and often will not admit that the honey was not properly graded, while no one but himself is to blame. All this can be avoided if the honey is properly graded.

TWO GRADES OF WHITE HONEY

are sufficient for our market. For a fancy white, select only what *is* fancy white. For a second grade, or fair white, take combs that are stained, or a trifle off in color, and combs scantily filled around the edges. Any combs mixed with dark or buckwheat honey should not be put in with the second-grade white. Such honey can not be sold for white, and will not sell for more than buckwheat; in fact, a straight buckwheat finds readier sale than mixed honey. It should be crated by itself, and marked accordingly.

TWO-POUND SECTIONS.

Our market demands a limited quantity of 2-lb. sections. About 10 per cent of the honey we receive is in 2-lb. sections, which is sufficient to supply the demand. These should be glassed altogether, and put in single-tier crates holding from 12 to 15 combs.

KEGS AND BARRELS INSTEAD OF SQUARE TIN CANS.

For extracted honey, basswood, white clover, or buckwheat, we prefer a keg of about 150 lbs.; half-barrels of about 300 lbs., or even barrels of 500 lbs., whichever can be obtained cheapest. We would not advise the use of 60-lb. square tins as used exclusively in California. Our trade is accustomed to the wooden packages for all kinds of northern, eastern, western, and southern honey, and we see no necessity for a change. The cans are more expensive than kegs or half-barrels; the honey in cans will *not* sell for any higher price, consequently nothing can be gained.

COMB HONEY ALWAYS BY FREIGHT, AND WHY.

I should like to make a few remarks yet regarding the shipping of honey. Comb honey should be shipped by freight altogether. Some of the bee-keepers seem still to think that comb honey must be sent by express only, believing it to carry safer. This is entirely wrong. Honey is carried just as safely, if not more so, by freight—at least this has been our experience. Owing to the short crop last season we received a large number of small shipments by freight, ranging from 10 to 50 crates each, and we had but two or three lots which arrived broken down more or less. In one of these cases the shipper wrote us afterward that the honey had already leaked when he took it to the depot. We reship it in lots of all sizes, often in single crates, and very seldom have a complaint. So far as the responsibility is concerned, all of them—the railroad, steamboat, and express companies—will take comb honey only at owner's risk, and will not listen to any claim if the honey has been broken down while in transit. Why, then, pay the express companies three times the rate of freight lines? We would advise bee-keepers to load the honey in the car themselves, properly protected. If this is done they may feel sure that the honey will arrive at destination in good order, under ordinary circumstances.

Another point we should like to call your attention to; namely, comb honey should be shipped in the original crate only. We received one lot of honey from Central New York this season, where the shipper had gone to work and crated six or eight original crates into *one large* crate. This certainly was too heavy a package to be handled with care, and, no doubt, received rather rough handling. What was the result? We received the honey all broken down, and the shipper was out from 4 to 6 cents a pound—a sad lesson indeed.

BEST TIME TO GET GOOD PRICES.

Last, but not least, when is the right time to ship comb honey to market? We have always advised early shipping—during September and the first part of October. Our experience teaches us that the early shippers obtain best prices, and get quickest returns, be the crop large or short. In all our experience we have never known the market to advance during November and December; but it usually declines as the season passes.

One word for ourselves. We have now been in the honey business six years, and flatter ourselves that we have the confidence and good will of nearly all bee-keepers throughout the country who have intrusted goods to our care. We always endeavor to obtain as good prices for consigned goods as if they were our own, and make prompt returns, and I think there are many here who will bear me out in the assertion. We wish to tender our thanks to our patrons (many of whom I recognize on this floor) for past favors, and respectfully solicit a continuance of your patronage in the future.

HENRY SEGELKEN,
for Hildreth Bros. & Segelken.
New York, Jan., 1891.

A lively discussion followed the reading of these papers, in which both honey-producers and commission men joined. For my own part I was greatly surprised that there was such a demand in the New York markets for glassed sections of honey; and after the discussion Mr. Elwood arose and said we should be very careful about going to extremes. It would not be best for us, as bee-keepers, to glass all our honey next season. It would make a glut in the market. The wisest thing was to glass a certain amount of it, put a certain amount in paper cartons, and a certain amount in 2-lb. sections. What we bee-keepers need to avoid is a glut in the market in any one style of package. As an example, several bee-keepers had, at the advice of Mr. Wright, put their buckwheat honey into ¾-lb. sections—these sections being considerably taller than wide. The result was, they glutted the market with that kind of section; and at this, several bee-keepers nodded assent. A couple of years ago the New York market demanded unglassed sections, and all bee-keepers produced and sent to market that kind. The result was, that the glassed brought a higher price. And, furthermore, Mr. Elwood said that the Western market would not use glassed sections, while the New York market would. A great deal of our honey goes west, and we must be careful to put it up in such shape that a part of it will be salable anywhere.

As to the effect of low prices in sugar, Mr. Segelkin, like Mr. Thurber, did not anticipate that it was going to affect the honey-trade seriously.

Forenoon, Third Day.

BEE-ESCAPES—THEIR USE AND BENEFITS.

An essay that should have been sent in on this subject did not appear; but George H. Ashmead said that his bees were near the highway—too near, indeed, to be pleasant to the passers-by. But lately, by the use of bee-escapes, he could take off every pound of honey without any disturbance whatever. He uses them for both comb and extracted honey.

I was not present at all of the morning session, and hence my note-book has not much regarding it. The afternoon session was brief, and simply took up matters of business.

Although there had been heavy rains, I counted at least a hundred in attendance at one of the sessions. For practical discussion on important themes, I do not know that I ever attended a better convention. Outside of California, the State of New York, I *believe*, has the largest and most extensive bee-keepers in the United States if not in the world; and I tell you it is a great pleasure to take the hand of those who count their colonies by the hundreds, and, I might almost say, by the thousands.

I told the members of the convention that I had a warm spot in my heart for all York State bee-keepers. And now that I have returned home, that spot is a good deal warmer yet. I shall not soon forget my pleasant memories on the bicycle tour, and the renewal of acquaintances at that convention. I am doubly glad now that the North American is to be held in Albany, and that its presiding officer is to be P. H. Elwood. I anticipate that its next meeting is going to be one of the grandest bee-conventions ever held in the United States. The last meeting of the North American was an excellent one; and, unless I am very much deceived by indications, the one yet to take place in Albany will eclipse them all.

SOCIAL CUSTOMS, ETC., IN SINGAPORE.

ANOTHER GLIMPSE FROM BRO. MUNSON, OF CHRIST'S CAUSE IN HEATHEN LANDS.

Dear Mr. Root:—Many days and months have passed since my last letter. I have long waited for time, but time hasn't waited for me; so if I don't "take time by the fetlock" (since I've not taken him by the forelock) I fear that 1890 will die by without a single letter written to you.

This has been a very busy and important year to this mission; and, having all its interests to attend to, I have had to let many a letter go unanswered, many an interesting book unread, and many a pleasant acquaintance uncultivated, for the King's business requires haste.

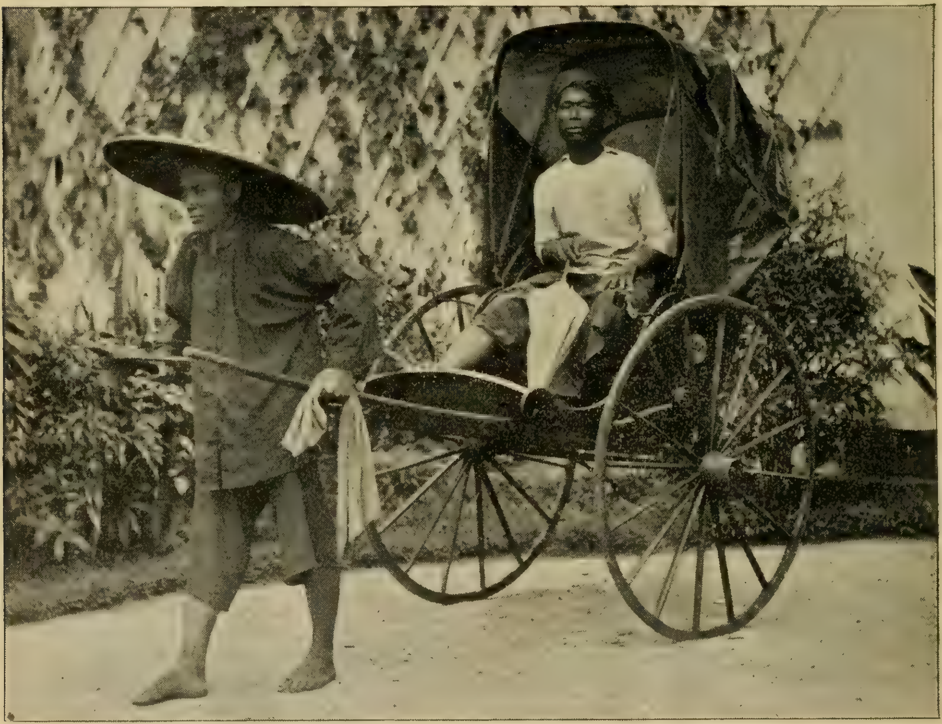
In my last, about the Indian money-lenders, I used an unfortunate expression when I said the Chitty was "*soulless*, or as near it as he could well be." The meaning I intended to convey was, "merciless, pitiless." He has undoubtedly a soul for which Christ died, that is capable of being transformed into the likeness and image of Jesus Christ.

In the picture I send you this time you behold one of the institutions of the East, and just in front of it a sample of one of the institutions of this world—the former a jinricksha, the latter an almond-eyed inhabitant of the land of Sinim, or in, common parlance, a "heathen Chinee." This man is one of the "cooly" class, or a common laborer. Let me first tell you what I know about the jinricksha.

One of the early American residents on the China coast lived in a city (Hong Kong it may have been) where there were no wheeled vehicles of any kind, and no horses or ponies. The only means of locomotion was by foot or in sedan chairs. This Yankee verified the old adage, that necessity is the mother of invention. To carry a sedan-chair, two chairmen were necessary; but when a very light little carriage like the one in the picture had been constructed he found that one man was able to make better speed, with greater comfort and greater economy to the traveler, than two in the old way. The result has been tens of thousands of these tiny road-carts in all the towns from Singapore to Pekin and Tokio; a lucrative employment for thousands of wheelrights and laborers, and a considerable revenue to the government. The chief means of public conveyance here is the hackney carriage and the jinricksha. It costs but five cents to go a mile in one of the latter, and you can ride to your own doorstep at that. They are much more comfortable than the hackney carriages, and four times cheaper.

In Hong Kong and other towns in China, they are beautifully finished, and are used by gentlemen of every rank. Here they are patronized chiefly by the native community and Europeans.

Every vehicle is licensed. A 'ricksha pays one dollar a year, and a hackney carriage one dollar and a half. The municipality registers both the carriage and the driver. You will see a number on the side of the 'ricksha in the picture, and one on the arm of the Chinaman. The man in the 'ricksha is a Malay from the island of Java. His head gear consists of a piece of cloth made expressly for the purpose, and twisted about the head, often leaving the crown entirely exposed. The most singular part of his dress is the garment that supplies the place of pantaloons. It is called sa-rong, and is a piece of figured cotton a yard or more wide, sewed togeher at the ends. This encircles the waist, and, after being folded over, is held in place by means of a belt of some sort. Most Malays wear under this a pair of short close-fitting drawers. They go barefooted, as all the Chinese coolies do, unless they have a small income, when they sport sandals or European shoes.



THE JINRICKSHA, THE COOLY, AND THE MALAY.

By far the most promising race are the Chinese. They are sometimes one thing and sometimes another in religion, but always ancestral worshipers. This is about the only thing you can be quite sure of. The wealthy Chinese have very fine houses, and there are few poor ones that do not live in good ones. They manage to live very well on a little, because so many live together in a single house. As a race they are very energetic and thrifty. It is plain to be seen that they will ere long crowd out the lazier and less hardy races. The Malays and Indians stand no chance, for they can not and do not even try to compete with the Chinese. Ninety-nine hundreths of the government revenue comes from them. They have been well called the Anglo-Saxons of the East. Sir Garnet Wolseley has expressed the opinion recently, in an important article, that, in the future, there will be but three great powers in the world—England, Russia, and China. The Chinese undoubtedly possess the elements that go to make up a great nation; and, when refined and exalted by Christianity, or, rather, by Christ, there will hardly be a limit to their possibilities of greatness.

But I must tell you about our mission to the Chinese. About two years ago Dr. West, from Crawfordsville, Ind., latterly from Iowa, opened a medical mission in the Chinese quarter, and immediately began to treat the sick bodies and sicker souls of the poorer Chinese, the coolies particularly. Almost the first man who came was an opium smoker who wanted medicine to cure his opium habit. The doctor pointed him to the Great Physician as his only hope. He looked, as did the bitten Israelites upon the brazen serpent, and lived. He gave up opium, found Christ, and is to-day walking in the light of the gospel.

Not many weeks ago I baptized several Chinamen, and organized our first Chinese church. It numbers eight, and ten baptized who will, in a few months, be received into full membership.

In our Anglo-Chinese school we have not a few true disciples of Jesus. Some of our brightest and most promising boys are firm believers, and, so far as we can judge, truly converted to God.

There is great joy in this work. It must make the angels' harp-strings ring again as they behold the sight. Native lands and all earthly ties are nothing if they would keep a true missionary from this grand service for our God.

A year ago Dr. West went to China to study the language. So many dialects of Chinese are spoken here along with the Malay, Tamil, and English, that a man must go to the district in China where a particular dialect is spoken in order to learn it in its purity. When the doctor returns in March, and gets well settled down to his work, we expect great things. There are 100,000 Chinamen here, and surely the Lord has some hundreds of people among them who will be gathered out very soon, we hope, and united into Christian churches. Pray for us.

R. W. Munson.

Singapore, S. S., Malaysia, Nov. 30, 1890.

[Friend M., you can not tell how interesting the picture you send us is to me. But I must confess that, were it not for the places occupied, I do not think I should be able to tell by the dress which is the rich man and which is the poor one. When you spoke about carrying passengers for five cents a mile, it occurred to me that we might possibly bring the jinrickshas into our own country, thus furnishing employment for some of those who beg so hard for something to do. But I am afraid that our American people would make a protest. It is true, we have poor men, and we have millionaires; but for all that, it would be hard to find men in America who would submit to the position of the coolies. A man might peddle milk, possibly, with a cart, and not mind it; but he would not draw his rich neighbor; neither would the rich neighbor submit to be drawn by his poorer neighbor, and I thank God for it. I am looking for and praying for the time when there shall be still more neighborly feelings between the rich and the poor; and I am praying with a pretty bright faith too. The answer is to come just where you are looking for answers to your troubles, dear brother—through Christ Jesus.]

WOULD THE TRUTH INJURE THE FOUNDATION TRADE?

FRIEND HASTY EXPLAINS HIS POSITION.

I see that, on page 94, friend Rice desires that I should explain. The state of the case is, that I have no quarrel with foundation in the hands of those who use it and know why. My combat is with the musty old untruth, that a pound of wax costs the bees twenty pounds of honey to make it. This misstatement makes a multitude of beginners in our art think they must use foundation, whether they can see any profit in its use or not. Many of these beginners are in localities where apiculture can not be pursued with profit, except in the most economical ways. Foundation costs money, and very fair brood-combs can be secured with only the expense of a little time and care. Moreover, in many lean locations, my own included, it is plain that full sheets of foundation in the sections very seldom pay for themselves. Where the bee-keeper can see plainly that they do pay for themselves, let him use them; but let there be no assuming that it *must be so*, on account of a big story about wax secretion. Let there be no hiding of our faces from the facts. I rejoice to see that Langstroth's work, as at present edited, comes down "several cats" from the old wild statement. In the last edition, bees are credited with being able to make a pound of wax from seven pounds of honey. I am pretty well convinced that there is room to come down considerably more; but I can be thankful for the concessions we already have. Both brood-combs and super combs for extracting, in the hands of careful keepers, are permanent fixtures, or nearly so; and thus the trade demand for heavy foundation is quite largely to supply the wants of beginners. As for those careless folks who let their combs be eaten up, and then buy sheets of foundation to replace them, I guess they are *always* beginners—beginners who seldom know whether the material they buy pays for itself or not. I did not mean that a bee-keeper in a good location in Southwestern Wisconsin would necessarily use less foundation if he knew the facts. I meant that the total amount used, the country over, would be much less if the stimulant to its use, which an absurd statement furnishes, were withdrawn. You see, I am very free to retract what I didn't say; but as to this last assertion, I think I shall be hit by a good many stale cabbages and turnips first before I take it back.

Richards, O., Feb. 3. E. E. Hasty.

[It now becomes *our* duty to make a little apology. Over a month ago, friend Hasty sent us the short tem which appears below; but instead of going into the journal promptly, it got laid away somewhere and was not used.]

FRIEND HASTY MAKES THE "AMENDE HONORABLE."

Friend Root:—It seems to be a proper time for me to eat a little "humble pie." I do not

think that Gleanings (or either of the other leading journals) would suppress evidence on the honey-wax question, or wantonly falsify to bolster the foundation trade. If my article which is complained of amounted to such a charge, I retract it to that extent. I think, however, that a public journal can do more mischief by keeping silence and letting a profitable error have full swing, when it has gained that advantage once, than it can by the grosser forms of ill doing. But, hold on! if I keep on saying what I think, this will be another kettle of hasty-pudding, and not a humble pie at all.
E. E. Hasty.
Richards, O., Jan. 5.

All right, friend H. There will not be any trouble with the "pudding" so long as you talk or write in the above spirit. And, by the way, the best remedy I have ever known for uncharitableness is a good bee-keepers' convention. Those who were present at the recent Detroit convention will, I am sure, bear me out in this; for each and every one felt as if we were under bonds not to judge hastily nor uncharitably of any absent brethren, especially if such have been unfortunate.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 178. *Is it a good plan to fasten bees in their hives by means of wire cloth, while in the cellar?*

No.
Illinois. N. C. J. A. Green.

I think not. R. Wilkin.
California. S.

I don't think it a safe plan.
Ohio. N. W. H. R. Boardman.

No. It is worse than useless.
Ohio. N. W. A. B. Mason.

No, sir. It is done at great risk.
New York. C. P. H. Elwood.

No, and there is no need of it in a dark cellar.
Vermont. N. W. A. E. Manum.

No, never, according to the opinion of Doolittle.
New York. C. G. M. Doolittle.

It is not necessary unless you have too much light in your cellar. P. L. Viallon.
Louisiana. E. C.

No. The old must die, and it is their nature to leave the hive when the end draws near.
Illinois. N. W. C. Mrs. L. Harrison.

No, not if they find it out. If you can fasten them in, and not let them find it out, it may work all right.
Wisconsin. S. W. S. I. Freeborn.

It is not, unless the fastening is in the shape of a cage of, say, two quarts' capacity. Close confinement with wire cloth causes uneasiness.
New York. E. Rambler.

I do not know. Under some conditions I think it might be, although I never practiced it.
Michigan. S. W. James Heddon.

Now, that's one of the things I think I know. It's *not* a good plan. I'd a good deal rather have them on the cellar bottom than on the bottom-board.
Illinois. N. C. C. Miller.

I should say no. When bees find that they are prisoners they want to get out, and will worry and work to do so. Bees should be quiet, to do well.
Wisconsin. S. W. E. France.

I do not like to do this. If the cellar gets a little warmed up, the bees become active; and if shut in they will be much injured if not destroyed.
Michigan. C. A. J. Cook.

No, emphatically. Keep them in the dark; but if any bees become so restless that they will not stay in the hive it would only cause them to disturb the others if they were shut in.
Illinois. N. W. Dadant & Son.

Bees should never be fastened in their hives by wire cloth or other means, excepting on a journey. The knowledge of their captivity creates a great alarm among bees, and is a dangerous experiment at any time of year.
Ohio. S. W. C. F. Muth.

I should say both yes and no. Sometimes, yes; usually, no. If you choose to cover the whole front of the hive with a big wire-cloth ante-room, in which uneasy bees can come out and promenade, I think there would seldom be any ill results.
Ohio. N. W. E. E. Hasty.

[I admit, friends, that it looks a little "cheeky" in me to disagree with such a respectable body of men when they say "no, no," with such emphasis. I think a good many of you, however, say no, because you have got that idea in your heads without having ever tried it very much. In moving bees, or in shipping them, we always shut them in a hive by means of a wire cloth, and sometimes they are weeks shut up in this way, without very much detriment; and it is certainly much worse to confine bees to their hives when they are bundled off in *warm* weather than it would be to thus confine them in a *cool, quiet cellar*. While I would not advise the average beginner to fasten his bees in the hives with wire cloth, I want to tell you that I wintered fifty or sixty colonies very successfully, and had them all fastened in their hives. The cover was removed, however, and the whole top of the hive covered with wire cloth. They were in a sawdust-packed bee-house. Part of them, instead of having wire cloth over the whole *top*, had it over the whole *bottom*. It was low enough down so the dead bees could be a couple of inches below the combs. In some of them there were no dead bees of any account on the wire cloth when they were set out toward the last of March. I do not know of any reason why my experience should have been so much different from that of others, unless it was at a period when I kept most of my stocks rather weak in numbers. A nucleus would get along much better when fastened in a hive than will a rousing colony. I rather think I hadn't a real good rousing colony in the whole lot.]

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

NEVER TO USE TOBACCO AGAIN.

I have concluded not to use tobacco in any way or form for life; and as you offer a smoker, I should like one; and if I ever use tobacco again I will pay you the price of the smoker.

Mt. Horeb, Wis., July 30, 1890. M. T. LOWE.

KEPT FROM IT FOR 6 MONTHS TO START WITH.

I have quit smoking tobacco for six months. Will you please send me a smoker? If I smoke again I will pay you for the smoker.

T. C. BROWN.

Burnside, Mich., Nov. 19, 1890.

A BOY OF 15 BREAKS OFF.

I have been using tobacco, but have concluded to quit. Please send me a smoker, and if I ever use it again I will pay you for the smoker. I am 15 years old, and have 5 nice stands of bees. FRED BUNDY.

Birdseye, Ind., Aug. 21, 1890.

COULDN'T BREAK THE FETTERS.

Find inclosed 75 cents in stamps to pay for the smoker you sent me. I have commenced using tobacco again, and, according to agreement, must pay for the smoker you sent me.

ELMER E. SHARP.

South Greece, N. Y., Sept. 26, 1890.

FOR TWO YEARS A FREE MAN.

I have received GLEANINGS for about two years, and through the influence of the Tobacco Column I have made up my mind to quit chewing the filthy weed. You can send me a smoker; and if I should break my pledge I will pay for the smoker. N. A. KREMER.

Canaan, Ind., July 29.

A YOUNG CHRISTIAN'S CONCLUSION.

I am now 21 years old, and have been in the habit of using tobacco some, but am trying to be a Christian. I have concluded to do without it, and that I can put my money to better use, and feel better over it. Please send me the smoker; and if I should use tobacco any more I will pay you for the smoker.

PETER W. SMITH.

Ephratah, N. Y., Sept., 1890.

A WIFE GOES SECURITY FOR HER HUSBAND.

My husband has been an inveterate smoker for many years, but for some time he has resolved to discontinue its use. These good resolutions have as often been broken. The last three months he has been reading the Tobacco Column, and I think his resolutions have been greatly strengthened thereby, as he has not touched the vile weed in that time. Please send me a smoker; and if he should again break over I will pay you for it.

JENNIE CHERRINGTON.

Pine Grove, Ohio, Sept. 9, 1890.

STILL "HOLDING THE FORT."

Through the influence of the Tobacco Column I made up my mind some 18 months ago to quit the use of tobacco. I have used it the greater part of my life. You can please send me a smoker; and if I should ever chew or smoke again I will pay you for the smoker. It has been 18 months since I have used tobacco in any shape. W. S. FESSENDEN.

Mountain Home, Texas, June 29, 1890.

A DOUBLE PLEDGE.

I see that you give a smoker to any one that quits the weed. Please send me one. If I ever commence the use of the weed again I will pay you $1.00 for the smoker. Will Lane is a friend of mine, and he has quit using tobacco also. I pledge myself to pay for them if we ever commence the weed, and will pay you $2.00 for them. JOHN J. ELLIOT.

Holden, Mo., Sept. 18, 1890.

"BRINGING IN THE SHEAVES."

Friend Root:—I always speak a word in regard to tobacco and temperance, and I got a new convert to the cause, friend August Roesler, an energetic man, who has for ever laid aside the filthy weed. If you will send him a smoker I will see that he gets it, and will also watch him close; but he says he will pay for the smoker if he uses the weed again. But no danger; he is settled. STEPHEN ROESE.

Maiden Rock, Wis., Sept. 30, 1890.

OUT OF BONDAGE FOR 21 MONTHS.

I have been a reader of GLEANINGS for a long time, and have admired your manly, earnest, and liberal efforts to induce people to quit the filthy use of tobacco. I think it is due your influence, at least in part, that I have been able to leave off the quid. If you see fit to send me a smoker, I shall endeavor to keep it as a testimony against the filthy habit. I have not tasted tobacco for 21 months, and hope, by divine favor, never to use it again, unless as a doctor prescribes; but should I, in weakness, take to it again, I here agree to pay you full value for the smoker. S. L. GREER.

Disco, Tenn., Dec., 1890.

OUR HOMES.

And as Moses lifted up the serpent, even so must the Son of man be lifted up; that whosoever believeth in him should not perish, but have eternal life.—JOHN 3: 14, 15.

Toward the close of the article from Bro. Munson, in another column, he mentions a poor opium smoker who came to the missionary doctor for something to cure his opium habit. I wonder whether there are any among the readers of GLEANINGS who have had experience in fighting this terrible thing. Physicians tell us that, when one has once become a slave to opium, the tobacco habit and even whisky habit are as nothing compared to it. A good many of them say that the opium eater or opium smoker can not be cured unless his friends take him in hand and keep him from it by main force. Opium so paralyzes the will power that the victim is, in one sense, powerless. A friend of mine who was given opium by his physician has told me something of the terrible struggle. And, by the way, this physician administered it without the patient or his friends knowing what it was that he gave. Is it wise or is it right to take medicine of any sort without knowing what you are doing? Our physicians are bound by the laws of the land to tell honestly and truthfully to the best of their knowledge what it is they are giving their patients; and I for one believe that a good many valuable lives would be saved if the number were larger who absolutely refuse to take *opium* under any circumstances. Do as a neighbor of mine did when the doctor told him he would die if he did not take whisky. "All right," said he; "then I will die; but I am going to die a sober man." Did he die? Not a bit of it. A man who has grit enough to tell his physician, "All right, then I will die," generally gets well. And I think instances are quite plentiful in most neighborhoods where people die because of the *medicines* and not because of the disease. Our most intelligent and soundest-thinking people are coming strongly to this conclusion. Our good friend Prof. Cook leads us, as you may remember. The last time I met him he told me to go on preaching and teaching to let medicine alone. He said I could not very well overdo the matter just now.

Well, now, about this opium habit. The missionary doctor told the poor heathen, crippled and stupefied as he was by the opium habit, that no man in the wide world could cure him. All the doctors and all the remedies known to the present age are helpless. They can fuss and experiment some with the patient, no doubt; they can, may be, substitute one stimulant for another: but the satanic demand is not satisfied. The inexorable craving will swiftly drag the patient down to a grave that is much the same as the grave of the drunkard. This missionary doctor, mind you, had other remedies besides those known to the *materia medica*. When the patient needed spiritual help he was ready to give it in place of medicine. "He pointed him to the Great Physician as his only hope." Perhaps he did it with little faith. The poor heathen Chinee, however, had faith, even if the doctor had not. He followed directions as best he knew how.

> And as Moses lifted up the serpent in the wilderness, even so must the Son of man be lifted up: that whosoever believeth in him should not perish, but have eternal life.—JOHN 3: 14, 15.

He looked to the Lamb of God who taketh away the sin of the world, and was healed. Was he then able to give up opium? Why, to be sure he was. The Great Physician does not make any half-way work about it; and our poor besottted heathen brother that was, is today walking in the light of the gospel. Is it any thing strange or wonderful? Not at all. Evidences of such wonderful healing are lying all round about us. Those who are only partly healed, or have afterward gone back, have surely forgotten or neglected to look constantly up to the Great Physician. The figure of Moses lifting up the serpent in the wilderness is perhaps the plainest that can be placed before us. It shows us by a picture, or by an object-lesson, how exceedingly plain and simple is the remedy for *all* sin. Of course, we must look in faith believing — there must be no half-way work about it; and we must keep our eyes constantly on Christ Jesus.

A good deal is said nowadays about tobacco substitutes. I should be very glad indeed to know that there is a substitute that is not just as bad as the tobacco itself. But, bless you, friends, he who is looking to Christ Jesus needs no tobacco substitute nor substitute of any kind. Besides, when we come to Jesus to be cleansed from all sin, the Great Physician does in reality cleanse us from *all* sin. A man with evil and vicious propensities is not very much better off when he gives up tobacco—that is, if he holds on to those evil propensities and passions just the same. We need to be cleansed from *all* sin. The use of stimulants is only a small part of what goes to make up a sinful heart: and if we lay all the blame to stimulants or intemperance we are making a mistake. Although, as a rule, we find the inmates of our penitentiaries and jails using tobacco and liquors (when they can get them), there are quite a few of these who practice *total abstinence* so far as stimulants are concerned.

A few days ago I was talking with a friend who is fighting against the tobacco appetite. He said, "I would give a hundred dollars this minute if I were clear of it." A bystander said, "Oh! I would give more money than that." I assured them that the terrible fight against the old habit would not last always, and that it would by degrees grow less and less. I told them that these *fierce* temptations occur only occasionally, and that very soon they would discover that, a great part of the time, it would not torment them at all. The first speaker then mentioned a man by name—a mutual friend of all present—who tried for two years to shake off this habit, and he said he wanted tobacco just as bad the last day as he did the first.

"Mr. Root, it is asking a man to shoulder a pretty big task, if this thing has got to continue right straight along for two years without respite."

Very likely he did not use exactly the above words, but it amounted to that, as nearly as I can remember. As our friend is a Christian—a member of the church—I exhorted him to bear it for *Christ's* sake. Said I:

"Look here, my friends; there are boys all around you. They are influenced more or less by you. You are expert mechanics, each in his own line. These boys have good reason to look up to you with admiration and respect for your separate abilities; and they will also, *in spite of all you can do*, be inclined more or less to do as you do in regard to this matter of using tobacco. When you think of them, and think that it is something that will follow them through life, can you not for *their sakes*, or, as I said before, for *Christ's sake*, undertake to bear this burden? When it becomes too heavy for you to carry, go down on bended knee and ask help of Him who said, 'Come unto me, all ye that labor and are heavy laden.' "

Then I tried to tell them that Christ Jesus bore far heavier burdens than any of us are called upon to bear. For our sakes he said, "Nevertheless, not my will, but thine, be done." And as the Father did not see fit to let the cup pass from him, he bowed his head in meekness and submission. He extended his arms, and meekly bore the anguish and torture of being nailed to the cross. The first speaker remarked right here, "Mr. Root, that is something I never could understand nor comprehend. I can not see why God should demand of his only Son that he should undergo this awful torture for *anybody's* sake."

Now, my friends, I want to tell you that, in attempting to answer this, I unconsciously brought new light into my own soul; and I want to confess to you to-day that, through all my life while I was a skeptic, and since I have become a Christian, there has been something dreadful to me in regard to this spectacle of the cross. It has seemed as if some mistake had been made in bringing such a horrible spectacle into the Holy Scriptures. It has seemed to me like a relic of heathen savagery. Can human imagination picture any thing more revolting to sensitive and tender feelings than the spectacle of driving great nails through living flesh and blood, and of such a scene of slow and horrible torture? God is *love*, so the Bible tells us. What good can come by holding up before our gaze constantly and frequently this picture of a meek, innocent, inoffensive character like that of Christ Jesus, going meekly and humbly to an ordeal like this? My friends, mind you, had just been telling of the crosses *they* had to bear. One of them said, that, if he gave up tobacco, he could not sleep nights—he would be unfit for business; but notwithstanding, I urged that it was the thing for him to do. All at once it burst upon me that God had chosen, for good and wise reasons, to hold up before a sinful and struggling world a picture of the *hardest* trial and most *severe* ordeal that any human being could think of. In short, this whole thing was arranged with the express idea that no poor struggling soul should *ever* say, "My burden is greater than *even the Son of God* was called upon to bear." Men are often called upon to meet sudden death, and, in some cases, a death of torture; but I can not remember that civilization or Christianity ever demanded that one should take up *voluntarily* a slow, lingering torture, such as that of the cross. We are told by history that the victims frequently lived, unless sooner killed with clubs, for several days in a kind of anguish and torture which we sincerely hope are unknown at the present time. Our Savior suffered about six hours; and while he suffered the bodily pain, he suffered in angish of soul in seeing the whole world, comparatively speaking, choosing wickedness, sin, falsehood, injustice, corruption, and crime. In this present state of affairs he could realize that nothing but his death and the shedding of his blood would answer. He died, that humanity might evermore look up to him as a model, not only in life, but as a model in death—a sacrifice for us. He died, that we might live. Now, then, my friend, when your burden seems heavy—when you are tempted to think you can not stand it any longer, or when you feel like saying, "I *won't* stand it any longer," remember the example of the Master. It was as hard for him as it is hard for us. He shuddered and shrank at the very thought of it. He looked in vain for some outlet—for some other way—just as you and I have been doing. He prayed even for God to spare him; yes, we are told until the sweat like great drops of blood stood upon his forehead. But when God decided that the sacrifice and the atonement *must* be made, he bowed his head in submission. *We*, as a rule, suffer because of our *sins:* Jesus was without sin. The thief on the cross hit it exactly when he said, "We receive the due reward of our deeds; but this man hath done nothing amiss." A young friend told me, not long ago, that his struggle against a certain kind of temptation was just about all he could stand. I knew of his former trials and difficulties; and I noticed, too, that for some time back he had apparently risen above them all. His record has been for some time almost faultless. He attends our meeting, testifies for Christ, and presents a cheerful and pleasant face to all his friends. He is apparently "holding the fort nobly;" yet when I came to get a glimpse behind this fair exterior he said something like this:

"Mr. Root, if this thing does not soon let up, it seems as if the strings would break."

Do you ever feel so, dear reader? Don't be lacking in faith. The *strings* will not break. An all-wise Father has given his promise to the contrary (see text in our previous Home paper). "There hath no temptation taken you but such as is common to man."

Be not weary, dear friend, in fighting life's battles, and in fighting hard for the cause of Christ Jesus, even though you have suffered long and have been kind, without any special blessing coming from it. Be steady, and hold on; the reward will come soon. Ye shall reap if ye faint not. Remember the words in Revelation—"These are they which came up out of great tribulation, and have washed their robes, and made them white in the blood of the Lamb." Your old friend A. I. Root has had some experience in this line; and I tell you there are no truer words in the Holy Scriptures than these: "Eye hath not seen, nor ear heard, neither hath entered into the heart of man the things which God hath prepared for those that love him." It is the overcoming that does the business. "To him that overcometh will I grant to sit with me in my throne." I had been unconsciously holding up to these friends of mine the cross; and I want to tell you of the reward that came to me for my poor feeble exhortation right in that line. I too, as you may know, have been fighting against temptations. It has seemed many times to me as if, as my young friend expressed it, the "strings" would break. But I held on and kept on praying. Now and then deliverance would come, as I have told you. But when I had climbed over one temptation, another was sure to come. Well, the greatest deliverance I have ever known in my life came after that talking about the cross. The temptations that I had been battling with so long and so fiercely on that morning seemed to fall away and go away off in the dim distance. In trying to describe it, these words came to mind: "So far as the east is from the west, so far hath he removed our transgressions from us." I have told you how I have for years avoided temptation as the intemperate man did in going home by a longer route so as not to take the street where the saloons were. It just occurred to me that day, that I need not take the longer route any more. I met old temptations face to face, without a waver. It has all my life been hard for me to take people to task, even when it is my duty to do so. Yes, I usually dread for hours, sometimes, to talk with even the boys when they need talking to. I have many times prayed that God would help me to overcome this diffidence in doing duty. I have wished and prayed that I might be able to reprove, without a shaking tremor in my voice, and an embarrassment that made it seem as if I were the guilty one; but God had not seen fit to answer the prayer, and so I had come to regard it as a thorn in the flesh. Once in defending myself a man said to me something like this:

"If you are honest and sincere, what makes your voice tremble so, and why do you get so excited? Why don't you talk coolly and quietly as I do?"

I replied, "My voice trembles because I *am* excited and stirred up. I wish I *could* talk coolly and quietly at times like this. God has not seen fit, as yet, to give me coolness and calmness, therefore I am doing the best I can."

Well, since I have got my mental vision fixed on a crucified Savior, it has seemed as if that prayer of these long years has been suddenly answered. I have been through our whole establishment, and talked with our boys about the tobacco habit as coolly as I would talk with my wife about it. I have met with provoking things, and have passed through many trying places; but I have not once since that time spoken a word hastily or that I would recall. I have read over the words of our text, perhaps hundreds of times, yet it never was plain to me until just now that it is *our* privilege to look and be healed, just as it was when Moses lifted up the serpent in the wilderness. Instead of looking at the brazen serpent, however, it is our privilege now, since Christ has come and suffered, to turn our eyes toward the figure of the cross. And there is no mistake in the words of the last of our text: "Whosoever believeth in him shall *not* perish, but have *everlasting life*."

EDITORIAL.

Let us run with patience the race that is set before us, looking unto Jesus the author and finisher of our faith; who for the joy that was set before him endured the cross, despising the shame, and is set down at the right hand of the throne of God —HEB. 12: 1, 2.

WE see by the papers that Dr. A. B. Mason has been appointed postmaster for Auburndale, Ohio.

A NEW DESIGN.

OUR engravers have just finished a new design for the title page of our journal. Turn over the leaves and see how it sets off Stray Straws.

IMPLEMENTS FOR BEE-KEEPING.

PRACTICAL bee-keeping is resolving itself into fewer and fewer implements. The price at which honey sells will not warrant us in purchasing a lot of paraphernalia not absolutely necessary for honey-production.

GLASSED SECTIONS.

THE above seem to have taken the first place in the markets of New York city. A few years ago we supposed, in fact truly, that glassed sections had gone out of market everywhere; but now they are starting up again in the East.

THE AMERICAN BEE-KEEPER.

THE second number comes out, like the first, with the vigor of age. On page 30 there is an illustrative article describing the Rhode Island Nellis hive. This uses the Hoffman frame, section-holders, etc. It appears to be a first-class hive.

STRAY STRAWS.

IT seems to please, as it is being copied in other periodicals. By the way, we might as well acknowledge the corn. We first saw the scheme in the *Apiculturist* and in the *Bee-Hive*. It is a good department, but you want a good man to manage it.

FIVE NEW BEE-PERIODICALS.

THE editor of the *American Bee Journal* says, "Five new bee-periodicals have been launched upon the sea of bee literature since Jan. 1. It must have taken considerable enthusiasm in the publishers to do this, after the failure of the honey crop the last season."

FOUR-PIECE AND NAILED SECTIONS IN YORK STATE.

FOUR-PIECE and nailed sections seem to be used considerably among the bee-keepers of New York and Vermont. The former are generally glued; and many of the bee-keepers whom we visited had some sort of gluing-machine whereby the putting-together and gluing could be accomplished expeditiously and neatly.

THE BEE-KEEPERS' UNION.

WE learn from the *American Bee Journal*, by the returns up to Jan. 31, that the following officers were elected:

General Manager, T. G. Newman.

President, James Heddon.

Vice-presidents, Prof. A. J. Cook, G. M. Doolittle, A. I. Root, Dr. C. C. Miller, G. W. Demaree.

We are glad that the officers were re-elected, especially the General Manager.

UNGLASSED SHIPPING-CASES.

OCCASIONALLY somebody will send us honey in shipping-cases without glass. The fragile nature of the contents can not be seen by the freight-handlers, and the result is that it usually does not arrive in good condition. Again, it does not show off in the markets. If bee-keepers could only see it, it is money in their pockets to glass their shipping-cases. A lot of unglassed cases we have been fixing over. We bored three 2½-inch holes directly in front of each row of sections, and tacked a piece of glass inside so as to cover the three holes. The honey in being sorted over was put back in said cases, and the appearance is decidedly improved.

WHAT DOOLITTLE THINKS OF GLEANINGS.

THE following is a kind word from G. M. Doolittle:

> I am glad to see the subscription list of GLEANINGS gradually increasing year by year; and it is nothing but what I expected, for you are making GLEANINGS so valuable that no one can afford to do without it.
>
> Borodino, N. Y., Jan. 30. G. M. DOOLITTLE.

That our efforts are appreciated, is attested by many letters like the above from some of the best and most successful bee-keepers. Such testimony is valued.

ENLARGEMENT OF THE EDITORIAL DEPARTMENT.

SOME of our subscribers have doubtless noticed that we have increased this department from three to four times its former size, and we find it is beginning to be appreciated already. E. L. Pratt says: "I hope you will continue your *good* editorial department to the same extent as in the Jan. 15th issue." Thanks, friend P. It is a great deal of work, but we will endeavor to keep it up. While on the train, going to a bee-convention, we said to Dr. Mason once, "What department do you like best in a bee-journal?" "I always go for the editorials," said he. By a little inquiry we found that others do likewise. We will endeavor to give the latest and best information from all sources.

WHO IS TO BLAME—THE COMMISSION MERCHANT OR THE PRODUCER?

A FEW days ago we received a consignment of several thousand pounds of comb honey. The shipper called it first quality. When it arrived we found that the combs had not been sorted, and the sections had not been scraped; in fact, the eggs and remnants of moth worm were present on a number of the combs. The honey had been stored without separators. It was bulged in a good many instances beyond the sides of the section. If bee-keepers send out honey of this kind, and call it first quality, and then complain to the commission men about low returns, who is to blame? Not the commission man.

STAPLES AND THE BLUEBERRY SWINDLE.

FROM a private letter we extract the following:

> L. D. Staples was convicted on the second and third counts of indictment; viz., for dewberry and blueberry scheme, and the fraudulent-advertising scheme. Sentence yesterday, 14 months at Detroit House of Correction. J. MCQUEWAN, Clerk.
>
> Grand Rapids, Mich., Jan. 28.

Truly, the way of the transgressor *is* hard; but we may rejoice to know that the laws of our land do reach such as he. For years he has been shown up through the agricultural papers since we first exposed him in GLEANINGS; but by some means he has managed to find new fields for his work, and new victims for his swindles. He is, however, now stopped, for some little time at least.

YELLOW CARNIOLANS.

IN response to our editorial in our issue for Jan. 15, E. L. Pratt writes: "You ask how to tell yellow Carniolans from Italians. By their disposition and color. Do the Cyprians look much like Italians?" Yes, Bro. Pratt, Cyprians do look a good deal like the bees from Italy; and we have found, usually, that it is only those who are expert in such matters that are able to tell the difference. We have no difficulty here at the Home of the Honey-bees, nor has any one who has closely observed the matter. But the average customer does not. Now, while you are about it, can't you make the abdomens of your Carniolans *all* yellow—that is, without any yellow bands?

WHO MADE THAT PHOTOGRAPH OF THE SOUTHWEST WISCONSIN BEE-KEEPERS' ASSOCIATION?

The beautiful photograph which we reproduced on page 886, last year, and which has been admired so much, and has since been copied in two other papers, did not bear the name of the photographer, otherwise we should have been glad to give the name in the first place. The photograph was an unusually fine one, and for a group almost remarkable. We have since learned it was executed by Mr. and Mrs. Geo. H. Perry, Platteville, Wis. They will doubtless be glad to furnish other copies.

DISCARDING THINGS PREMATURELY.

We often hear it urged, as an objection against a device, that it was invented, used, and discarded, long ago. In spite of this fact, in some instances the discarded invention seems bound to assert its merits, and up it bobs, as serenely as it did at first. The second time, we begin to see the point; and bee-keepers west, east, north, and south, become enthusiastic in its praise. An example of this is fixed distances in frames. We can not conclude, therefore, that, because a thing was once used and discarded, it is therefore valueless after all. The lesson that comes to us here is, we should be careful about discarding things prematurely. It is almost as bad to do this as it is never to accept or recognize a new thing of merit.

ADDING INSULT TO INJURY.

Of late, quite a few have been reported who purchased honey, and then made an excuse for not paying for it by claiming that it was adulterated. We have one or two such customers ourselves, and three or four more have been reported. It is bad enough to raise honey and not get any pay for it; but when it comes to accusing the honest bee-keeper of being a *swindler* besides, it seems to us that forbearance ceases to be a virtue; and we hereby give warning that we shall give name and full address of every such person who introduces this sort of excuse, or tries to come this game upon us. It is true, there may be adulterated honey found in our land; but you don't buy it of *bee-keepers* and *honey-raisers*. Before any man's name is thus put in print, this slip will be sent him; and if he has any defense to make, we will give him ample time to do so.

NEW ADVERTISING RATES.

We have prepared a new schedule of advertising rates. While in some cases it is stiffer and in some a little more liberal than the old rates, its application is much simpler, and almost anybody can tell with very little figuring what his advertisement will cost. See rates on first page, inside of cover. This, of course, in no way alters existing contracts for advertising for the current year; but all *new* contracts and new estimates will be made from the new schedule. We also give, for the convenience of the few, what are called "space rates;" that is, you can buy so many lines and use them up in large or small advertisements, just as you choose, in every number, in every other number, or in every three or four numbers. Send for our "Hints to Advertisers," mailed free on application. It tells when and how to advertise apiarian supplies, nuclei, bees, queens, etc., how to write an advertisement, and also how to make a little money go as far as possible.

PROSPECTS FOR NEXT SEASON.

If the number of bee-keepers' catalogues of bee-supplies which we are printing (to say nothing of those done at other houses, noticed elsewhere), and if the large amount of hive and section making machinery we are sending out means any thing, it means there is going to be an extra good season next year. We have never before had such a run for machinery. Our machine-shop is having a big rush; and it is somewhat behind in consequence. This does not necessarily signify that competition is going to be any stronger on account of new supply-dealers or the increased facilities of old ones, but that the bee-keeping industry is growing and spreading, the world over. We wish all every measure of success. We have a *big* country, or, if you please, a big world, and there is *plenty* of room for all, even for the bee-journals, though the rule of the survival of the fittest will rather crowd some of them before the year is up, we fear. Competition! so much the merrier. We shall get better supplies and better journals; in fact, they begin to sparkle already in their new dresses and innovations.

WINTER WEATHER IN ENGLAND AND SPAIN.

We notice by the *British Bee Journal* that they are having unusually severe weather. They have had it as low as 27 degrees below the freezing-point, or, as we would term it in this country, five above zero. In the south and southeast of England they have had sixty days of frost, and during the whole of that time in many parts of the kingdom the bees have never seen the outside of their hives. This is not an unusual thing for the United States—at least the northern part of it; but when bee-keepers are prepared for a warmer climate, it makes the prospects for successful wintering rather dubious in England. But if such weather has prevailed in the latitude of London (51½ degrees), which is considerably north of the United States, the unusual severity of the last month is realized when we read in friend Andreu's Spanish bee-journal of the unusual prevalence of snowstorms, cyclones, and zero weather in the south of "Spain, sunny Spain." The orange-trees and kindred semi-tropical fruits are all killed. Wolves have roamed the villages, and even destroyed human life, as we learn from other sources. Friend Andreu asks, philosophically, "Is it possible for us to struggle against the north pole?"

TRADE-MARKS FOR HONEY-PRODUCERS.

There is considerable discussion going on in the bee-journals in reference to a trade-mark; and it has been suggested that the National Bee-keepers' Union take hold of the matter. The idea struck us as being a pretty good one. But here is a note taken from a private letter, which Bro. Newman very properly gives to the bee-keeping world, although he has withheld, of course, the name of the writer:

> In the matter of trade-marks, Bro. Heddon is enthusiastic—yea, eloquent in his idea of "whipping the d——l around the stump," as they say; but he does not quite hit the nail on the head. A "mark" of some kind may be taken (a label if you please) to prove membership in the Union; but will the Union warrant that every member sells nothing but pure honey? Would not one sale of poor honey spoil the

whole? Now, I do not see, first, how a trade-mark can be obtained from the Patent Office for the Union. I can not see how a private trade-mark can be a Union mark; and, again, I can not see how the Union can "back up" or warrant any member. We know there are black sheep, and there may be some in the Union. In fact, Bro. Newman, I do not see how a trade-mark can help us as a Union; but I can see how it may hurt us awfully. My idea, then, is, to let the Union stand as it is—a bulwark of defense for its persecuted members, but not as an advertising scheme for any of them. Let each honey-producer stand on his own reputation, which he can make good or bad; for by his fruits we shall know him.

These are things that we should consider; and some of the points made by the writer above are well taken.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

OUR OHIO EXPERIMENT STATION AT COLUMBUS.

My good friend E. C. Green gave me a notice that they had two greenhouses full of very nice lettuce, which they were going to cut on the 29th of January. On the afternoon of that day it was my pleasure to look over their work. One of these greenhouses is warmed by pipes underneath the beds, and the other by an equal number of pipes overhead, hot water being used in each. The plan was to decide which gave the best results for vegetables under glass. So far as crops were concerned, there seemed to be but little difference; but from the fact that the overhead pipes kept the frost off from the glass, thus giving the plants more sunshine, and, in consequence, requiring less fuel, this plan is preferred. Both houses showed a degree of thrift that does much credit to the young men who have it in charge. Friend Green is a Medina Co. boy, and has taken up this work with no practical experience, and with but little instruction from any one. The work is under the charge of Prof. Thorne; and I must say that I never saw a prettier-looking greenhouse for garden-stuff in any of the large cities in any of my travels. Of course, the work is principally devoted to testing many things connected with this kind of work under glass. One bed of lettuce, for instance, is watered entirely by sub-irrigation, something on father Cole's plan. Another, right by its side, is watered by sprinkling overhead. At present, sub-irrigation has given the better crop. Various experiments were performed to determine the value of chemical manures—prominently, the nitrate of soda; and although these experiments were made with the utmost care, there was nothing in the greenhouse to indicate that the nitrate of soda had been of any advantage whatever. In fact, some beds seemed to indicate that its effect had been detrimental. Prof. Thorne said its effect on the wheat in the open air had been wonderful, without question; and he said that, if he could show the Ohio farmers the difference in the appearance where nitrate of soda had been used, he could give the sale of it one of the biggest booms that a fertilizer ever had, provided he did not at the same time tell them that the increase of crop was not sufficient to pay the cost of the fertilizer. As the nitrate of soda is being advocated through the agricultural papers in pretty strong terms, I think these experiments must prove valuable. Although we have used it to a considerable extent on our grounds here in Medina, I have not been able to see that it produced any effect whatever, unless it was on a crop of spinach outdoors; but in that case, as I put it all over the whole patch, I can not be sure that the spinach would not have been as well off without it. In raising vegetables under glass, it would, of course, pay us to use very expensive manures that we could not think of using for ordinary crops outdoors; and at the present writing I know of nothing that equals guano and lime for greenhouse work. I shall have more to say in regard to this visit in some of my future garden talks.

SPECIAL NOTICES.

ENOUGH OF FEB. 1, 1882.

Our offer in last number brought us an abundant supply of the above number, so please don't send any more.

SPECIAL 5 PER CENT DISCOUNT ON WIRE NETTING.

All orders for wire netting, either job-lot pieces or regular stock, received here not later than the 25th of this month, will be subject to a special 5 per cent discount. This is with a view of getting as many orders as possible filled and out of the way before the rush of spring trade begins. If in need of any thing in this line, send on your orders and secure the discount.

REDUCED PRICES ON THE TWO NEW BOOKS ON GARDENING.

By buying in large quantities we have obtained special rates, so that we can sell "The New Onion Culture" for only 35 cts. instead of 50, and the new "How to Make the Garden Pay," for $1.50 instead of $2.00. The above prices include postage. If ordered by express or freight with other goods, the price will be 30 cts. and $1.40 respectively. It seems to me it will pay those who are to any extent engaged in market-gardening to have both of these new books. The larger one is the most complete work on gardening under glass that has ever been published.

THE OLD BACK NUMBERS AT ONE CENT EACH.

A good many who have ordered these have almost entirely misunderstood our offer, and have specified the numbers they wanted at this rate, instead of taking just what we chose to send. The fact is, we have a wagonload or more of old numbers, mostly 8 or 10 years old, but we haven't much of a surplus of late years. We could sell these old numbers as paper-rags, but they contain very valuable matter; and by asking a cent apiece for them we should have about enough to pay for our trouble in wrapping and for the postage, and you would get a lot of good reading for almost nothing. Now, we will put the proposition this way. Old numbers of which we have a surplus will be one cent each, postpaid, in lots of 10 or more, *if you take what we choose to send*. We will send the numbers you specify, at 2 cents each, *provided* we have an abundance of them, so they can be spared without reducing our files so as to make it necessary to buy them back again. Remember, the old back numbers, *our choice*, will be one cent each; *your choice*, 2 cents each, provided we have a surplus of what you choose.

BUY YOUR EARLY QUEENS SOUTH

I will have on hand a stock of

CHOICE ✽ ITALIAN ✽ QUEENS

as early as they can be raised down here. Write for prices and particulars.

OTTO J. E. URBAN, Thorndale, Milan Co., Tex.

☞In responding to this advertisement mention GLEANINGS.

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

☞In responding to this advertisement mention GLEANINGS.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
12	2	20	⅝	18 in., 50; 72 in., 95, 27.
48	2	20	⅝	49, 25, 25, 6; 60 in., 47, 42, 32, 24.
42	2	19	¾	50.
60	2	19	¾	42, 38, 32, 11.
72	2	19	¾	134, 108, 103, 103, 100, 94, 88, 81, 73, 68, 67, 60, 50, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	23, 15.
36	2	18	1	122, 30 inches wide, 63, 25.
48	2	18	1	100, ; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 35, 22, 22; 60 in. wide, 67, 20.
36	2	17	1¼	42, 23, 15; 24 in. wide, 77.
48	2	17	1¼	78, 53, 32; 60 in. wide, 25.
12	2	16	1½	59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1½	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1½	60, 58, 56; 48 in. wide, 70, 48, 46, 40, 26, 19; 60 in., 62.
18	2	15	2	87, 61, 30; 12 in. wide, 100.
24	2	15	2	120, 100, 90, 69, 52, 33, 33, 13, 12.
30	2	15	2	127, 21, 6; 60 in. wide, 21, 20.
36	2	15	2	17, 13, 7, 7, 7, 6, 5.
42	2	15	2	121, 35, 26, 23, 20, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 22, 14.
36	2	14	3	29; 42 in., 71.
24	1½	20	1	39; 18 in. wide, 14; 30 in., 14.
42				85, 59.
30	1½	19	1	33, 33, 36 in. wide, 47, 47, 45.
48	1½	19	1	56; 72 in., 64, 63, 10.
18	1½	18	1⅛	40;
48	1½	18	1⅛	60 in., 65, 34, 19; 54 in., 12.
30	1½	16	2½	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1⅝	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 82 50.
32	1	18	2½	85, 32; 9 in., 32; 10 in., 20; 24 in., 23; 30 in., 69, 51
36	1	18	2½	37; 48 in., 30; 60 in., 59.
9	¾	20	2¾	33, 7; 36 in , 75, 55.
9	¾	19	3	128.
24	3	16	1	46, 19; 36 in., 86, 42 in., 14.
36	3	15	1⅛	63; 48 in., 60.
24	3	14	1⅞	150, 18½; 48 in., 45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15 10.
30	4	14	4¼	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34 25, 24 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

DON'T FORGET To send for my descriptive catalogue of **ALBINO ❊ BEES.**

A. L. KILDOW, - - Sheffield, Ill.

Please mention this paper. 4-5db

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

☞In responding to this advertisement mention GLEANINGS

MUTH'S
HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to ***CHAS. F. MUTH & SON,***
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.

FOR SALE. The walls and water power of an abandoned gristmill, 10 acres land in a good location for a bee-supply business. No factory near, and large apiaries in every direction, or will take partner. Address GEO. W. RANDALL,
4-5d Big Rock, Iowa.

FOR SALE. Three or four S. C. B. Leghorn cockerels, as good stock as can be found in the world. Come and see them. Write for prices with your address on postal, and you will receive by return mail my new descriptive circular, free.
4-5-6d ROBT. C. SMITH, Swissvale, Pa.

FOR SALE. Black Minorcas and Pekin duck eggs, $1.00 per 13. Bear-paw corn, 75c peck, $2.75 per bush. J. V. HURLESS, Archer, Harrison Co., O.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 64, 63, 63, 63, 62, 33
25 green	12	100	100	1.75	
2 green	16	100	133	2 33	
1 black	22	71	128	2.24	110 sq. ft., black; price $1.92
5 green	24	100	200	3.50	140. 8, green; 200 black.
35 green	26	100	217	3.50	This is below reg. pr. of 1¾ c.
14 green	28	100	233	4.08	224, 224, green.
6 green	32	100	267	4 67	
10 green	34	100	300	5 25	300, black; price $5 25
6 black	38	100	317	5.54	269, black; price $4.70
5 green	38	100	317	5.54	258, black, price $4.50
3 black	40	100	333	5.83	317, black; price $5 54
8 black	42	100	350	6.12	350, green; price $6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

Albany.—*Honey.*—The demand for comb honey is more liberal since the Lenten season began, but there is no change in prices. We have had one consignment of 40 cases of comb honey and 30 packages of extracted since last report. No change in prices of extracted. We quote clover, 16@18c; mixed, 14@15c; buckwheat, 12@13. Extracted, light, 8@9; dark, 7@8.

Chas. McCulloch & Co.,
Feb. 20. Albany, N. Y.

Cincinnati.—*Honey.*—Demand is good for all kinds of honey, with a good supply on the market of all but Southern honey, which is scarce. Choice comb honey brings 16@17c a lb. in the jobbing way. Extracted honey, 6@8c a lb. on arrival. *Beeswax.*—There is a good demand for beeswax at 24@26c a lb. for good to choice yellow on arrival.

Chas. F. Muth & Son,
Feb. 20. Cincinnati, O.

St. Louis.—*Honey.*—Mild weather has affected trade so that there is scarcely any demand for either comb or extracted. We quote white-clover comb at 16c; dark, 13@14. Extracted, 6@6½ in bbls.; cases, 6½@7½. *Beeswax*, 26½. D. G. Tutt Gro. Co.,
Feb. 19. St. Louis, Mo.

San Francisco.—*Honey.*—Extracted honey is firmer, and several carloads have been sold East at 6¼@6½c, f. o. b. Comb honey very scarce, and to be had only in small lots. We quote 10@14c, as to quality. *Beeswax* in good demand at 24@25c, f. o. b.

Schacht, Lemcke & Steiner,
Feb. 14. San Francisco, Cal.

New York.—*Honey.*—We quote extracted California honey, light amber and white, at from 7@7½c. Florida honey in barrels at 7@8c. *Beeswax*, nice yellow Cuban, 28½c; Southern, 29½c; selected California, 31c. F. G. Strohmeyer & Co.,
Feb. 20. New York City.

Detroit.—*Honey.*—The market for honey is not very brisk. Comb honey is selling at 14@15c. Extracted, 7@8c. *Beeswax* firm at 27@28c.
Bell Branch, Mich., Feb. 19. M. H. Hunt.

Kansas City.—*Honey.*—We have a steady demand for comb honey in 1-lb. sections, and if receipts continue light our market will soon be cleaned up. We quote white 1-lb. comb 16@18; California 2-lb. comb and extracted slow sale. We quote 2-lb. comb, white, 14@15; dark, 12@13. Extracted, 6@7. *Beeswax*, 25c.

Clemons, Mason & Co.,
Feb. 24. Kansas City, Mo.

St. Louis.—*Honey.*—The season for the sale of comb honey is well advanced, and the demand is rather light. Choice white clover, 14@15c. Extracted, in cans, choice white clover, 7½@8c. Lower grades in both comb and extracted, lower as to quality. *Beeswax*, prime, 26c. W. B. Westcott & Co.,
Feb. 13. St. Louis, Mo.

For Sale.—2000 lbs. clover honey, in 15-gallon kegs, at 9 cts. a lb. by the keg, tare out.

Mont Wyrick, Cascade, Ia.

For Sale.—Extracted honey, in 70-lb. tin cans, at 10 cts. per lb., f. o. b. Lewis Haines,
4d Moons, Fay. Co., O.

For Sale.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb E. J. Baxter, Nauvoo, Ill.

For Sale.—Choice honey in sections, cans, and C. pails. Send for price list to Oliver Foster,
12-tfdb. Mt. Vernon, Ia.

The Greatest Invention of the Age!
BEES MADE TO HIVE THEMSELVES.
Full particulars free. Address
5-tfdb **H. ALLEY, Wenham, Mass.**
Please mention this paper.

BEESWAX
FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**
Bleachers, Refiners, and Importers of Beeswax,
5-16db **Syracuse, N. Y.**
☞In responding to this advertisement mention Gleanings.

TAKE NOTICE.
Our New Factory is Now Open
To receive orders for **Bee-Hives, Frames** of all kinds, **Shipping - Crates, Sections, Honey - Cans, Comb Foundation,** and **Smokers.** Write for price list to
GREGORY BROS. & SON,
5-tfdb **Ottumwa, Wapello Co., Iowa.**
☞In responding to this advertisement mention Gleanings.

Bees & Supplies for Iowa.
Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster,**
5-tfdb Mt. Vernon, Linn Co., Iowa.
-34d Please mention this paper.

HAVE YOU READ MY
Ad. on **Inside Back Cover** of Gleanings, Feb. 1st? Also my ad. on **Page 117,** Feb. 15th **Gleanings,** about my **New Potatoes!** If not, do so at once. W. Z. Hutchinson, on page 45 of the Feb. *Review*, says, "They would almost **pass for a Sweet Potato.**" If you intend to try them it is necessary for you to **order soon,** as they would not go half way round to the readers of Gleanings. Potatoes will be sent the first week in April. Safe arrival guaranteed. 5tfdb
Jacob T. Timpe, Grand Ledge, Mich.
☞In responding to this advertisement mention Gleanings.

HO FOR CALIFORNIA!
FOR SALE. 100 Colonies of Bees. Full colonies, $3.50. Stanley Extractors, Vandervort Mill, and other fixtures. Send for descriptive price list and realize the bargains. Address
J. H. MARTIN,
Hartford, Wash. Co., N. Y.
HO FOR CALIFORNIA!
1tfdb Please mention this paper.

NEW AUTOMATIC
ZINC PERFORATOR.
I am now able to supply zinc with the round-end perforations in 16 styles of opposite and alternate perforating. The new machine makes any size of sheet, with a border of any width from 2x5 inches up to 24x44. The work done has
NEVER BEEN EQUALED,
is uniform, exact, and perfectly reliable. Prices very low. Send stamp for samples. Address
DR. G. L. TINKER, New Philadelphia, O.
5tfd Please mention this paper.

GLEANINGS IN BEE CULTURE

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

Published by A. I. Root, Medina, O.

Vol. XIX. MAR. 1, 1891. No. 5.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE STING-TROWEL theory has gone into hibernation.

THE OLD OFFICERS of the Bee-keepers' Union are re-elected.

DIVIDED TOP-BARS are being repeatedly invented nowadays.

OUTDOOR WINTERING had a majority of votes at the Ontario bee-keepers' convention.

REDUCED FARE is a thing of first importance in fixing time and place of conventions.

WHERE ARE the one or two government stations that Prof. Cook speaks of as doing something with bees?

MR. G. DELAYEN's plan for an out-apiary is to have very large hives, and visit them only twice a year, spring and autumn.

WILL E. E. HASTY please tell us whether he succeeded in getting an improved breed of red clover? Hasty is the man to do it if any one can.

THE ONTARIO BEE-KEEPERS' ASSOCIATION reports 323 members for last year. Can you beat that on this side of the line, you bragging Yankees?

ARTIFICIAL HEAT in cellars is bad—costs too much. Artificial cold (or natural either) is still worse. If cellars get too cold, choose the least of two evils.

CARBOLIC ACID used for quieting bees, says the *B. B. J.*, was credited by the late Rev. George Raynor as the chief cause of his immunity from foul brood.

"NUMBER TWO," in *C. B. J.*, thinks I'm afflicted with *versatility*. That's not what ails me, "Number Two." It's the grippe that's got its—got its—grip on me.

LARGER BEES are advocated in the *Api.*, in the belief that doubling the size of the bee will double the distance it will travel. Does a crow fly any further or faster than a blackbird?

THE BRITISH BEE JOURNAL is publishing a series of "Bee-papers for Winter Reading." If the first number is a fair sample, the series will be valuable. In effect it will be a practical treatise on bee-keeping.

E. R. R. ASKS ME, on page 87, whether I would "preach bee legislation, priority claim of locality, or move out," if bee-keepers were too thick around me. I wouldn't do either. I'd shut my teeth tight together, and wish for the day to hasten when bee-keepers would have the same chance as farmers.

PROF. COOK found that bees fed on pure honey, or honey and syrup, half and half, lived five times as long as bees fed on Good candy made from coarse granulated sugar. Powdered sugar is the thing for Good candy.

HEATING BEES in winter is discouraged by the *B. B. J.* Undoubtedly right where zero weather is never known. But where for days it keeps some 50° below freezing, give me a steady coal fire, if my cellar is not warm enough.

A COLD DAY, E. R. R. says, makes it all right to carry in bees without bottom-boards. Yes, I know, if it's cold enough. But I want mine in the cellar before it is cold enough. So I prefer to carry in the deep space with my hives.

AN EGG of a queen is $\frac{1}{14}$ of an inch in length and $\frac{1}{70}$ of an inch in thickness. If a queen lays 3000 in 24 hours, and they are laid in a row, end to end, it will make a string about 18 feet long. Even if she didn't lay them in just that length of time, I suppose they would measure the same.

SECTIONS BY WEIGHT is the safe way. I'm beginning to favor less than a pound section; for if all are less than a pound, the public will soon learn it, and then there can be no cheating by selling light weight. The weight is too uneven to make selling by the piece always best.

LOOSE OUTSIDE CASES over hives are nothing new, according to the *B. B. J.*, and it pokes fun at us for thinking they are. It says, "We trust they will give such hives a fair trial, and that they will also find them as advantageous as we have done for the last fifteen years or more back."

HONEY, according to Prof. Cook, is digested, ready for absorption, making it a safer food for man than cane sugar, and a safer food for bees in confinement. Practice doesn't always confirm this, but there may be something wrong in the practice. It's hardly right to give the name of honey to some of the thin sour stuff that goes under that name.

A STANDARD TEMPERATURE for cellars, I'm afraid, is a bad thing. If you say 40°, some beginner will freeze his bees. If you say 45°, another will roast his. Cellars differ. Thermometers differ. Each one must find out for himself what's best for him. Better tell the beginner, "There is no standard. Hunt for a quiet spot somewhere between 37 and 50."

THE NAMELESS DISEASE is agreed to be cured by changing the queen. I'd like to see some of the "ample evidence" of it. "A number of cases and all recovered after changing the queen?" I can give just as strong proof that red paint on my shop has cured the numerous cases that I have had. I don't say changing the queen never cured a case, but I never saw satisfactory evidence of it. Mine always got well without it.

"MAKE YOUR HIVES and appliances by all means if you can, but draw the line at frames and sections. Buy them and save money, time, and temper, and secure efficiency by so doing." So says the *B. B. J.* Good advice, only I'd put "hives and appliances" on the same side of the line as frames and sections, in most cases. I'm satisfied with putting together and nailing.

FOUL BROOD can be cured by using *naphthol beta*, so says Dr. Lortet in the *Revue Internationale*. The *B. B. J.* gives a translation of his article, and speaks approvingly of the remedy, which, it says, is perfectly harmless. Dr. Lortet says, "It is the adult bee which is first infected." "Contaminated honey may be a cause of the propagation." Cheshire denies the latter.

"THE HONEY-BEE: ITS NATURAL HISTORY, ANATOMY, AND PHYSIOLOGY," Mr. Cowan's new book, is just the thing for some of you beginners to read up on, who want to be in the front ranks. It's so nicely gotten up that it is a pleasure to leaf it over. I haven't had time to read it yet; but from what I know of its author I am safe in saying it is entirely accurate, and up with the times.

THE DEPOSIT SYSTEM is an English kink. The *B. B. J.* says, "When strangers are dealing together, the purchase money of the articles is deposited at our office. We acknowledge the receipt of the deposit to *both* parties, and hold the money until we are satisfied that the purchase has been concluded." A small fee is charged. Why wouldn't that be a good thing to copy in this country?

GENERAL CORRESPONDENCE.

BEE-ESCAPES.

EXPERIMENTING WITH DIFFERENT FORMS; HOW MR. DIBBERN CAME TO DISCOVER THE HORIZONTAL STYLE.

During the 25 years that I have kept bees it has been a constant problem with me how best to get rid of the bees in the surplus boxes. I tried about all the different methods suggested in all that time, but all proved more or less unsatisfactory. But, let us try, and investigate, to see, if we can, where and what the difficulty to be overcome really was, for the thing is accomplished.

When I commenced bee-keeping we had no bee-papers—at least I knew of none—and the only guide I had was *Quinby*. He recommended leaving the surplus boxes out over night, about six inches in front of the hives, and placing a few sticks so the bees could run over the bridge to their hives. Sometimes this worked all right, but often the honey would be covered with bees the next morning, ready to go for any one coming to get it. Then, too, should a shower come up during the night, the honey would be damaged. It would also be a "shining mark" for nocturnal prowlers; and should it chance to be forgotten, or left out too long in the morning, what a picnic there would be!

The next plan suggested was to get several large store boxes and pile the surplus boxes in, bees and all, and cover over with a sheet, occasionally turning the sheet and liberating the bees. In that way very many young bees would be lost, never having marked their hives; and it was a slow and tedious way at best. It was also necessary to keep a constant watch, as a gust of wind might blow the sheet off at any time, and make lively times among the bees.

When I began to use sections and cases, I adopted the Heddon plan, smoking out all the bees I could, and carrying the rest into the honey-house, allowing them to escape at the top of the windows by having the wire screen extend some six inches higher than the windows. The objection to this plan was, that bees would be "bumming around" the room all day; and if any extracting was to be done they would be getting into the honey, and be a constant annoyance. One day I carried in a good many bees; and as it was almost unendurable to work in the honey-house, I went away a while doing other work. When I returned, there was "music in the air;" and I noticed about a quart of bees clustering at the top of one of the escapes at the window, and bees *did find their way back* into the room, and were actually carrying off the honey. This plan is also open to the objection that young bees will become lost, and it is a nuisance in every way. How strange that some of our *boss* bee-men, even editors of apicultural papers, should still cling to such methods!

Well, the next thing that seemed to offer a solution to this problem was the tent escape. This I used by piling up eight or ten cases, and placing a wire-cloth escape, fashioned like a house-roof, with an opening at the apex, on top. When I succeeded in smoking out most of the bees, it would generally clear out nearly all by evening; but often the bees would all cluster in one case, where it became difficult to get rid of them, and many young bees would get lost. When many bees were left in the cases they would often cluster at the top of the escape, and they then seemed to have no difficulty in finding their way back, carrying off the honey, and attracting other robbers.

About this time my attention was called to the Reese escape, and I was very favorably impressed with it. When a hive was not very strong with bees, it generally worked very well; but in removing cases from strong colonies, when no more empty cases were needed, the bees would often fill the entire space under the escape-board, and build comb there. They would also sometimes cluster on the wire-cloth cones, and open up communication between the case to be removed and the hive below. I was not long in deciding, that, to make a perfect escape, we should somehow have to get along with only bee-spaces. I then constructed a wooden rim ⅜ inch thick, tacking wire cloth on both sides, allowing the bees to escape between the cloth through a series of V-shaped escapes. I tested this to some extent in the fall, and it worked well. I believe this was the first horizontal bee-escape ever tested, and I have it as a relic yet.

Well, this idea opened up a whole multitude of bee-escapes. I soon saw that this original was larger and more expensive than need be, and soon boiled it down into my pear-shaped escape. This is really a very good form, and, if rightly made, will generally prove satisfactory. After I had published my invention of the horizontal bee-escape, a multitude of similar escapes at once sprang into existence. Thinking that perhaps I had not yet found the best plan on which to make the escape, I studied various designs, and finally adopted a four-pointed star, with openings for the escape of the bees at the points. I concluded that, as there were four outlets, it would greatly increase the capacity. It was also made removable, which I consider an important feature. The four large openings, however, proved a mistake, as I found that, in warm weather, the bees had no great difficulty in finding their way back through it. This is really the great danger to be overcome to make escapes perfectly successful. By close watching I found the bees would cluster on the cones, filling them full of bees, and seemed to be able to communicate to other bees the way through the escapes. After satisfying myself where the difficulty lay, I at once commenced experimenting to overcome it. I soon decided that the escape must be so made that bees could not readily cluster on it.

Remembering my original board, I again commenced with a board the full size of the hive, first making a bee-space between two thin boards, and making a series of runways and stops in it. I found it to work all right. I then began reducing the size of the escape, and kept testingthem all the time by removing partly filled supers and putting them on again. I finally adopted a size 4½x6½, beyond which I could not well reduce it, and made it removable. I experimented a good deal with them and took off all my cases, some 300. I also sent out more than 200 to other bee-keepers, and did not hear of a failure. Mine could not have worked better, and I do not see that any thing better can be desired. The idea that bees uncap any honey before leaving the surplus case is unfounded. They sometimes do, when they can go back through the escape, and will carry honey down if they have time enough. It is practically impossible for bees to return and open up a highway through my new escape. Several bee-keepers have lately reported using my escape with unsatisfactory results. I have investigated all that have come to my attention, and invariably found it was the old four-point escape that made the trouble.

THE HORIZONTAL BEE-ESCAPE.

This has come to stay; and if we have not yet obtained the best form, it will soon be here. I want to say right here, that "the war" as to the rightful inventor is over, and it is free to all. Many other bee-keepers have brought out horizontal escapes that are ingenious, and will probably work all right. Some that I tested proved failures; but that was to be expected. I am sure we have got something that will be appreciated more and more as the years roll on. Even some of our great bee-men and eastern bee-editors will have to "acknowledge the corn" after a while. I know the horizontal escape is a good thing, and can abide my time.

Milan, Ill. C. H. DIBBERN.

[The star-shaped horizontal did not work very satisfactorily in our yard; but your original pear-shaped escape works well.]

SHADE FOR HIVES.

HOW THEY PROVIDE FOR IT IN CALIFORNIA.

In foot-notes to Miss Wilson's article in Jan. 1st GLEANINGS you invite a discussion as to whether it is best to have our hives under shade-trees or not. It is a matter I have been giving some thought to of late, and I hope to see it thoroughly discussed.

In California I have never seen an apiary located under trees, though a good many use shade-boards, keeping them in place by laying on them a heavy rock. This method is objectionable, as it necessitates much extra and fatiguing work, and affords no shelter from the sun's rays to the apiarist. Permanent sheds are much better. One 5 feet high in the front, 4 feet at the rear (which should be to the south), 3 feet wide, and 75 feet long, can be built for $5.50, reckoning lumber at 3 cents a foot and shakes at $14 per thousand, allowing 50 cents for the nails, and charging nothing for putting it up, the roof to be one layer of shakes. This makes enough shade, but does not shed rain. By moving the hive to the southern side of the shed in the spring, they will get the desired sunshine. In summer, place them to the north side, and they will be in the shade all day. Under sheds, however, in order to economize, we are apt to put our hives nearer together than is good.

PECAN-TREES FOR SHADE IN THE SOUTH.

In Louisiana I once kept bees beneath a grove of pecan-trees. They make a dense shade, with branches high above the apiarist's head. For that climate nothing can be better. In California the difference in temperature in shade and sun seems to me to be much greater than in the East; and it is probable that, some days in the spring, stocks in the shade would be kept so cool as to do much less work than those in the sun.

The peach is a nice tree to plant in the apiary. It grows rapidly, and makes a shade of just about the right density. Some varieties are later in putting out leaves in the spring than others. These are the best to plant, as at that time of year the hives should have all the sunshine possible. In California, French prunes might be better than peach-trees. They are of slower growth than the peach, but more profitable when it comes in bearing. This tree has been termed the lazy man's tree, as its fruit, instead of rotting when not gathered, will dry into a marketable commodity.

Build your honey-house in the center of a two-acre orchard. Put two hives under each tree, and it will be about right for a 400-hive apiary. Scattered over so large a space, young queens will have no difficulty in locating their own home, and I believe that, in that respect alone, it will more than repay for the extra travel necessary where hives are so scattered.

One very great advantage, where hives are scattered among trees, is the lessened liability of swarms uniting, which issue at the same time. Last year, in my apiary (located on an open plat), I had 16 swarms unite, making a cluster as large as the body of a good-sized horse. Many other times I had from two to six unite. The consequence was, that a majority of my queens were killed at a time when the eggs laid would have produced workers for the main honey-harvest.

The trees should be trimmed high, both to get the branches out of the apiarist's way and permit a free circulation of air. A neighboring bee-keeper told me quite recently that his hives in the shade melted down worse than those in the sun. He had set them in some low brush, which grew thick from the ground up.

Where, from preference or necessity, hives are to be placed near each other, if the ground be planted out to a variety of trees it will better enable the bees from the different hives to identify their own home. In my apiary I am planting grapes, apples, peaches, prunes, walnuts, pears, and figs. With the exception of apples and pears, no two trees look alike.

A year ago I purchased some 300 enameled-cloth quilts for my hives. While they are good for preventing the escape of warmth from the hive, I believe those quilts have been the cause of more profanity in my apiary than the 400 stocks of hybrids, though each of which (last summer at any rate) seemed possessed of the diabolism of a thousand demons. If any wind is blowing it is almost impossible to keep the quilt spread out smooth while one puts on the top. I have often had it go sailing off ten feet or more, just as I was closing the hive. I have thought of tacking them to the cover. A much better quilt is a piece of canvas well daubed with thick paint. Its weight being great, the wind does not bother much. WM. G. HEWES.

Newhall, Cal., Jan. 13.

OUTSIDE CASES FOR WINTER.

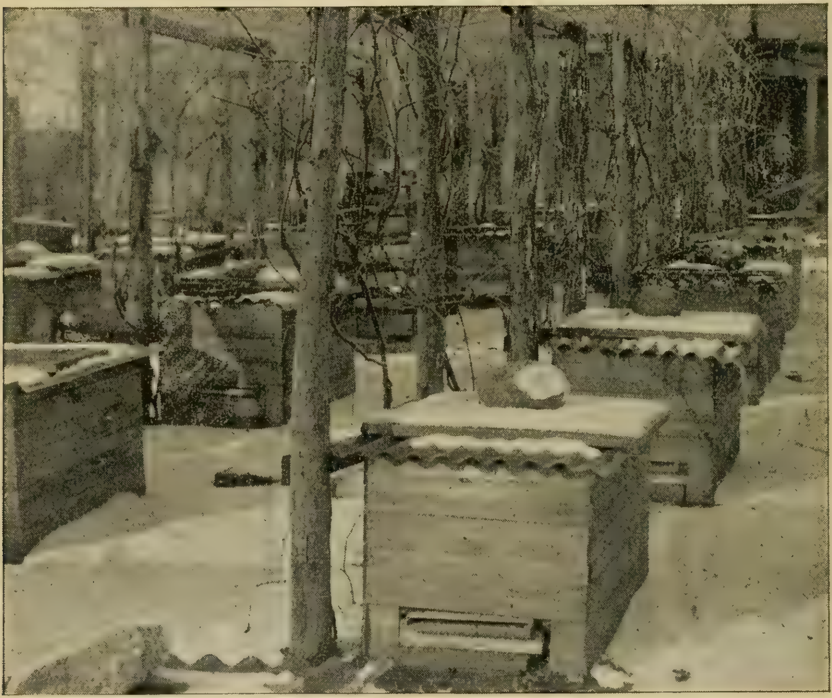
SUCCESSFULLY USED BY J. A. GREEN.

From the references that have appeared in GLEANINGS lately in regard to outside shells for packing bees that are to be wintered on their summer stands, the novice would almost be led to think that it is a new and untried device. I have used such packing-cases for four years; and at present I have over a hundred colonies protected in this way. In fact, with the exception of a few in your chaff hives, every colony that I am wintering out of doors is snugly packed in leaves or shavings held in place by an outer case. Besides this, there is a great stack of them waiting to be put over the bees now in the cellar when they are brought outdoors.

"What," you say, "do you go to the trouble of packing bees that have passed through the winter safely in the cellar?" Yes, that is just what I am going to do. I believe that it pays to protect bees, and I think there is no time when they need protection more than in the spring, when we want them to rear as much brood as possible. Thin-walled hives are too easily affected by changes of temperature at this time, and brood-rearing suffers in consequence.

To make my packing-cases I use ordinary lath cut into two pieces, 20 and 28 inches long. These are nailed to three-inch corner strips to form the ends and sides of a box without top or bottom. It is made of such height that, when set over the hive on its stand, the outer case resting directly on the ground, it will be five or six inches higher than the hive. The end pieces should be nailed to the flat side of the uprights, and two or three left off at one end for the entrance. Now put a "bridge" over the entrance, set the packing-case over the hive so that the front rests on the bridge, holding it firmly in place, and put in your packing material. This may be whatever is convenient. I generally use leaves. Soft leaves, such as those of the soft maple, are excellent. Planer shavings or sawdust are more easily handled, and better.

We now want a roof over it. Above all other qualities it must be water-tight. Wet packing is worse than none at all. I have given considerable thought to the matter of making a roof that would be cheap, durable, and effective. All these qualities are hard to combine. A very good and cheap roof may be made by nailing barrel-staves crosswise to a three-inch strip a little longer than the packing-case, putting over them a sheet of roofing-paper, then nailing on another layer of staves so as to break joints with the first ones. The most satisfactory covering, though, and the best, all things considered, is a sheet of corrugated iron, large enough to cover the whole. An ordinary sheet (96 in. long) makes three pieces just right. Nothing further is required. Just lay the sheet of iron on top, and lay a stone on it to keep it from blowing away; or, better, lay a short piece of board across the top, and the stone on that. This makes a roof that can not leak; and with ordinary care it is practically indestructible. With a coat of paint occasionally, it will last as long as the owner. When not in use they can be stored in a very small space, as they nest into one another. They make the best of shade-boards for summer, if



J. A. GREEN'S APIARY IN WINTER, SHOWING OUTSIDE PACKING-CASES.

any are desired. Cut the corners off rounding, so clothing will not get torn on them.

These corrugated iron covers cost me a trifle less than 20 cents each. A bunch of lath, costing 15 cents or less, will make two packing-cases. I think these are practically as good as if made of more expensive lumber. If you desire, you can turn them into excellent chicken-coops for summer use. If you want them more oramental, paint them with a mixture of skim milk and hydraulic cement, or other cheap paint. Really, though, I don't think they look very bad unpainted. They ought to be of a dark color, so as to absorb as much of the sun's heat as possible whenever it shines. This helps brood-rearing in the spring wonderfully. One of the principal arguments in favor of unpainted hives is, that bees build up in them better in the spring. I think this is mostly due to the dark color. With a dark outer case you have all this advantage, and more, as the packing retains the heat.

I inclose a photo showing how the hives look, packed as I have described.

I have given up the coal-mine where I wintered them for the past two winters, as it was too hard to get at it.

My apiary is just on the edge of a bluff. There is a stream in the valley—Fox River—running south. J. A. GREEN.

Dayton, Ill.

[I think you are mistaken. I did not mean to convey the impression that outside winter cases were new; on the contrary, all along I have assumed that they were old. What I desired to know was, how many bee-keepers were using a similar arrangement *now*, and, more particularly, how the so-called dead-air space compared with packing.

With your corrugated covers I should think the snow would beat in under and so dampen the packing; and there is that 10-lb. stone and board—doesn't that make a good deal of rigging? The outside packing-case that I described on page 698 last year was to cost only 35 cents, and, besides, it would be much neater. If painted muslin or roofing-paper will answer in place of tin, the cost will not be more than yours.] E. R. R.

SOMETHING ABOUT BEES AND BEE-CELLARS.

DOOLITTLE CONTINUES THE SUBJECT.

A correspondent writes thus:

> My bees seem to be wintering poorly on their summer stands, and I have resolved to build me a bee-cellar. How should it be built? how ventilated? what is the right temperature to keep it while the bees are in it? at what time of the year should they be put in and taken out? I know you have told us considerable about bee-cellars, and I know that an article on this will be a little unseasonable; but will you not be so kind as to give us some of the small points necessary along this line, and tell us about it soon, as I wish to build mine right after spring work, so it may get all dried out and ready for the bees in the fall? Give the article in GLEANINGS, as I think it will be of interest to many besides myself.

Well, I supposed I had written about all I had to say on bee-cellars during the past; but with the editor's permission I will try again.

To my mind, it matters very little how the cellar is built providing it accomplishes the purpose for which it is intended; i. e., keeping a uniform temperature inside, no matter what are the changes outside. Of course, you will want it large enough to accommodate all the bees you will ever expect to have to put in it. If it can be built in a side hill it will better accomplish the keeping of an even temperature than a cellar under a house can be made to, and this is the reason why I prefer the outside cellar, or cave. If your cellar under your house can be partitioned off so that the apartment for the bees need not be disturbed by the constant going after vegetables, etc., and so that an even temperature can be maintained, such a cellar is equally good with an outside cellar. The trouble with the cellar under the house lies in the fact that the cold and warm air, produced by the varying temperature of winter, passes through the floor of the rooms above, so that no even temperature can be kept below. If the space under the floor, between the sleepers, can be filled with chaff or sawdust, it will help much to obviate this trouble. If the cellar is dug in a side hill I would have it long and narrow. Mine is 24 feet long, 7 wide, 6 high, and is large enough to accommodate from 100 to 125 colonies, according as they are packed. From this you may know about the size you want. The cellar in the side hill has another advantage, in the fact that the path into it will be on a level with the ground outside, so that the hives can be set on a spring wheelbarrow and wheeled right where you wish them in the cellar. This one item alone would almost or quite pay for the outside cellar in the course of 20 years. Some seem to think that it is very important that the cellar be dry, so that no moisture nor drops of water ever collect on the walls or about the bees or cellar; but all of my experience goes to prove that, if the temperature can be kept between 40 and 45°, all the moisture that will naturally accumulate in any cellar will do no harm. My cellar is so moist that drops of water stand all about overhead and on the side walls of the room, yet the bees do not seem to be affected in the least by it. I am coming to think more and more that the matter of ventilation is non-important, as bees winter in splendid condition with no special provision being made for any ventilation. By way of explanation, I will say, that, when I built my cellar, I constructed a sub-earth ventilator 150 feet in length, in connection with a direct upward ventilator of the same size. Either of these could be controlled at will, and every change of weather found me changing these ventilators. After a little I began to leave the upper one closed all the while for a month, while the sub-earth ventilator was often closed for days together. Not seeing that it made any difference with the bees, I now left them closed all the while; and as this gave me a more even temperature in the cellar, neither ventilator was opened at all during the winter of 1889; so this fall, when I came to re-roof my cellar with flagging, I left out the upper ventilator entirely, allowing the sub-earth ventilator to remain, but it has been closed all winter so far. In this way I have no trouble with the temperature, as it will vary only from 41 to 43° degrees during the whole winter, or only two degrees. If you have a cellar in which the temperature falls lower than 40, I would put a slow fire in it, or in an anteroom just off from it, so that, when there is much severe weather, the temperature might be kept up at 43 to 45° if possible. A change of 10° in temperature is liable to make the bees uneasy, cause them to go to breeding, get the diarrhea, and spring dwindle. If the cellar is under a house, some seem to think that a small pipe from the chimney above the fire, running down to within two inches or so of the cellar bottom, to be used in a warm time, is a good thing in that it causes a change of air during a warm spell, which results in keeping the bees quiet with a much higher temperature than they would without this change of air. I am not positive on this point; but if I had a cellar that would run up to 50 every warm spell, I would try it. With me I consider a temperature of 42° to be the best for a cellar; but I would say that the temperature which is best is the one in which the bees are the most quiet. That may not be the same with you that it is with me; therefore I would advise you to keep watch closely; and when you find where the bees are the most quiet, control the temperature *just* there as near as may be ever afterward. Bees will be quiet in a much higher temperature during November and December than they will be during March; therefore the cellar that will cool off a little as the winter advances is much the best, providing it will not rise when the weather begins to warm up in the spring. If the bees are quiet in the cellar, do not remove them till the elm and soft maple are in bloom, about April 20 in this locality. Set them in the cellar on the approach of cold weather, say Nov. 10, and you will not be far out of the way.

Borodino, N. Y., Feb. 12. G. M. Doolittle.

FOUL BROOD.

HOW TO BURN THE CASES WITHOUT DANGER OF INFECTION TO THE HIVES.

I tried every remedy you told me of, but found nothing that would effect a permanent cure. I would be much encouraged after applying a remedy for awhile, but it would soon be as bad as ever. I became perfectly disgusted with the whole business, and nearly decided to quit it entirely. I then had 26 colonies, March, 1889, and 16 of them had foul brood. Some of them were so bad I could smell them 20 feet from the hive. I knew it would be only a short time before it would be in the rest. So I decided to try what virtue there was in fire. Don't laugh at me, and say, "That man Keith is foolish." I had become somewhat desperate. Every thing in the bee line was going to the dogs, so I had to try a desperate remedy. I dug a hole opposite each affected hive, a little larger than the size of the hive, about 1½ feet deep, and filled the hole half full of small split pine. Then I took three hives off the bottom-board, and placed them in the hole. I did this after sunset, and put fire in the hole, and soon the hives, bees, frames, and honey were all in flames, and they made a good fire. While I was watching them burning, my wife said it was a pity to lose the hives. It was bad enough to lose the bees, but to lose both was too bad. I agreed with her. I got my smoker and filled it up with nice dry wood, and got it in full blast, and put a handful of pulverized sulphur in the smoker, and went to the other affected hives and killed the bees with the smoke, then I put dead bees, combs, honey, and frames in the fire, and burned them up. Then I had the hives well scraped, then scalded with water, then well fumigated with sulphur; so, at my wife's suggestion, I saved 13 hives; and by the process mentioned I am entirely clear of foul brood. I have not seen the least indication of it since March, 1889. And I believe it is the only effectual way to rid an apiary of the disease. I have now 37 colonies in good condition, apparently healthy, and I hope to increase to 50; then I shall have as many as I want, and hope to make a good crop this year. Now, friend Root, if you can suggest a better remedy for foul brood, let me hear from you. J. J. Keith.

Louisville, Ga., Jan. 15.

[It is not necessary to kill the bees. We have cured all we had that were diseased, with the exception of a few that we at first destroyed with fire, by scalding the hive with boiling water and putting the bees in clean hives on frames of foundation. After the bees have consumed all the honey in their sacs in comb-building, they are free from the last vestiges of foul brood. If you discover that you have one or at most two cases *at the start*, it may be advisable to burn them as you describe.]

PAINTED MUSLIN VS. TIN FOR COVERS.

SUGGESTIONS FOR THE DOVETAILED HIVE.

On page 69, muslin versus tin covers are mentioned. You are the man who advanced this idea way back in the 70's in Gleanings. Then as now such covers were a success with us.

A MUCH CHEAPER COVER.

Muslin on a wooden stretcher, or frame, portico like, with two coats of paint, is an excellent cover, but it will not stand hailstorms. The cover of the Dovetailed hive is just the thing for a painted muslin protection. Then the hive has the needed shade in summer, and will be water-proof.

You should make some improvements yet on the Dovetailed hive and closed-end frames. The end-pieces of the frames should be ¼ inch from the hive. The frames should not rest on the bottom-board: it will be a moth-nest if they do. Could you not send a frame-rest with each hive? This rest can be made of half-inch (½x$\frac{3}{32}$) hoop iron or steel. The main object in setting the end pieces of the frames back ¼ inch is to have a cooler hive in summer and a warmer one in winter. Queen-excluders should have quarter-inch passage-ways on the ends also, to enable the bees to ascend and descend from the super.

The other day I had a Bay State hive shipped by Mr. H. Alley. Indeed, it is a neat and superior hive. It may become a pet hive with all bee-keepers who keep bees on a small scale. For others, too many screws! I can handle all sections in a Dovetailed super before an ordinary bee-keeper will have cared for one frame in the Bay State super. It may be because I am a hard Democrat, or that the Bay State hive has too many fixings. A bottom-board should be one plane—all hills and valleys should be avoided—and I fear the Bay State hive has these uneven faults in some degree.

Rev. Stephen Stenger.

St. Meinrad, Ind., Jan. 20, '91.

[Yes, I knew the senior Root used painted cloth years ago; but the *junior* Root wished to ascertain whether they were used anywhere with success *now*. So far the testimony for the painted muslin vs. tin has been favorable. *If* it will answer for outside winter cases to set over in lieu of tin, it will not only be much cheaper, but far better. *Tin* is too good a conductor of heat and cold; and some of our outside cases, on examination, showed early this fall that great drops of water had collected on the under side of the tin. To remedy this, I put Simplicity covers on top, and that fixed it. Well, now, painted muslin is a good *non*-conductor of heat and cold, and, if sufficiently durable, will be better than the tin. See? Both the tin and muslin will have to be painted; but the cloth holds the paint better than tin. As to expense of material, the cloth would cost about one-fifth as much as the tin, making the expense of the outside cases from 25 to 33⅓ per cent less. But some will say, tin will be cheaper in the long run. Very likely, for regular hive-covers; but for winter cases the cloth will be warmer. Of course, either the tin or cloth should be supported by ⅜ lumber beneath.

About the bee-space between the closed ends and the hive end: The majority of bee-keepers would oppose you strongly on that point (see page 87, last issue, for a sample). The reason is this: If bees have access to both sides of the closed ends, they will gum them together that much harder. To make closed-end frames readily movable, the bees should have access to the cracks between the uprights on the *inside only*.

Your frame-rest for the bottom-board might do; but isn't it too much rigging?]

ABOUT CLOSED-END FRAMES.

IS THEIR USE IN A TIGHT-FITTING CASE, A LA HEDDON, NEW?

Near the close of the honey season of 1878 or '79, while taking sections of honey out of a super that held a single row of sections like one apartment of Moore's crate, it occurred to me that brood-frames could be constructed to fit in a hive in the same way. In a few weeks after I first thought of such a hive, I constructed one with closed-end frames, and with the ends of the frames fitting against the ends of the hive. In the fall of 1879 a hive of this kind was exhibited at the Smithfield fair; and in the next spring, about a dozen hives of that kind were made and sold. I had used closed-end frames prior to the construction of this hive, but they did not fit against the ends of the hive, and they were used for the extractor only.

Starting with one hive in 1880 I have added to the number occasionally till I have probably more than 20 of that kind in use now. I prefer that the ends of the frames shall not exceed a scant $\frac{3}{16}$ inch in thickness. That thickness is all that is required for strength; and the thinner the ends, the less trouble there is in the way of pinching bees between the edges when frames are replaced in the hive.

It is important that the frames shall have very little "end shake." When a part or all of the frames are taken out of the hive, bees will crawl up on the end of the hive; and, in replacing the frames, if there is as much as $\frac{1}{8}$ or $\frac{3}{16}$ end shake, some of the bees will be caught and rolled in between the end of the frame and the end of the hive. If the frames have not more than $\frac{1}{16}$, I prefer $\frac{1}{32}$ end shake. The bees will be shoved out of the way, and, with a little care, the hive can be closed without crushing bees. By using wire nails, and nailing through the thin ends into the tops and bottoms, we have a good, cheap, invertible frame. The frames stand on a strip of wood nailed against the ends of the hive at the bottom, and the tops of the frames are even with the top edge of the hive. In tiering up the strips on which the upper frames stand, cover the upper ends of the frames below. The entrance is at one side of the frames, and a follower is wedged against the other side of the frames, the bees being excluded from the space at the back of the follower. In connection with a top-bar of proper width and thickness, this arrangement probably reduces burr-combs and propolis to a minimum.

R. M. REYNOLDS.

E. Springfield, O., Feb. 10.

P. S.—The details on first page are important, for the reason that Heddon claims that his patent covers the close-fitting case. If you don't care to publish this, please return it.

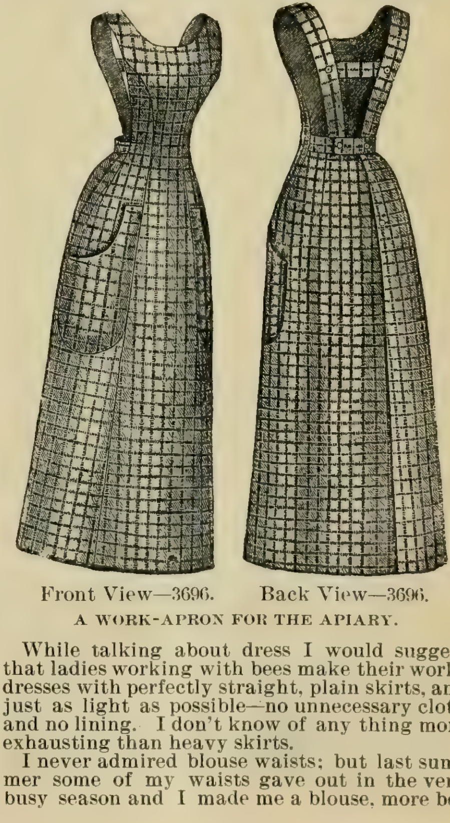
R. M. R.

[I am free to say, that Mr. Heddon is progressive, and one of the few, I think, who are able to pick out the few good things in the rubbish of bygone days. He was the first one to give me an insight into the possibilities resulting from the use of fixed distances. But there are one or two things which I feel need correction. If he is claiming broadly that he was the first one to suggest the use of closed-end frames in a tight-fitting case, he is greatly mistaken. I have known for some time that he was not a prior user of this combination. I found one place where it had been used in York State for a good many years, and I heard all around that it was an old idea. Mr. R. M. Reynolds, of East Springfield, O., whose letter appears above, gives us ample proof of the oldness of the idea. The two things—closed-end frames and tight-fitting cases—are so suggestive of the combination that it would be strange if it were not originated years and years ago. I have no doubt that this letter will call forth similar ones from others; but I have no disposition to stir up controversy, only that credit should fall where it is due. That no one may accuse me of hiding behind the editorial *we*, I come out under the singular form of the pronoun, and sign myself E. R. R.]

BEE-DRESS FOR LADIES.

THOSE DOOLITTLE CELL-CUPS, AGAIN.

Since writing about aprons I have found a very pretty pattern for my bed-ticking aprons. I send you a picture of it. You need not smile. Even a bed-ticking apron will look much better if made up neatly than if fashioned after a clumsy pattern. I like to look neat, even when taking care of bees. Don't laugh, Mr. Root; I really do, although I had reached such a dilapidated condition the day you visited our apiary.



Front View—3696. Back View—3696.

A WORK-APRON FOR THE APIARY.

While talking about dress I would suggest that ladies working with bees make their work-dresses with perfectly straight, plain skirts, and just as light as possible—no unnecessary cloth and no lining. I don't know of any thing more exhausting than heavy skirts.

I never admired blouse waists; but last summer some of my waists gave out in the very busy season and I made me a blouse, more because it was quickly and easily made than for any other reason. I found it so very cool and comfortable that I made several and wore them the rest of the season. They are very easily laundried, which is quite an item. so you can afford a clean one every day if necessary. I do not imagine they would be very becoming to stout people: but for slender ladies they do very well. At least, try one and see how you like it.

I nearly always wear a worsted skirt of some kind with mine, having it made perfectly plain, without lining, finished at the bottom with a deep hem. Then they can be laundried if necessary; but you will find they do not need it very often if made of some good serviceable color. If you get a spot or two of honey on, just sponge them off, and it is all right. I find the blouse waists very economical, as I can wear out so many old dresses in that way.

I am very anxious to know why we failed with Mr. Doolittle's artificial cups. I can hardly think it was because we did not handle the larvæ carefully enough, for Dr. Miller has successfully practiced for years the transferring of larvæ to queen-cells of the bees' own making, when he wished them to rear from imported stock. We tried as many as five colonies at a time, giving to each from ten to twelve cups, after they had been made queenless and broodless for 24 hours. The only two we did succeed with were reared over a queen-excluder, with a good laying queen below. We tried to follow directions minutely, and they certainly did look nice enough, when ready for the hive, for the most fastidious bees to use. But for some reason they preferred not to use them. These same bees started cells quite readily on the Alley plan. Now, I have an idea that it was either the cups or the royal jelly that was not quite right; but what the trouble was, I am sure I don't know. We used the jelly from cells nearly ready to seal, and carefully stirred it with a toothpick as directed, being very careful to get about the amount in each cell that is given in Mr. Doolittle's book. The cells were carefully prepared according to directions; still, there may have been something about them not quite right. It sometimes takes very little to throw things all wrong. I never for an instant doubted that Mr. Doolittle made a perfect success of it. The thing that bothered me was that *we* couldn't, and we did try hard too.

Marengo, Ill., Feb. 3. EMMA WILSON.

[The picture which Miss Wilson sends us was taken from Butterick's *Delineator;* and as it seems to be just the thing, we are glad to re-engrave it. Any lady who desires to make it needs only to call for pattern No. 3696, at any of the stores where Butterick's patterns are sold. If they can not be obtained in your village, write to the Butterick Pub'g Co., New York. The price will be only nominal. We shall be glad to have our lady bee-keepers try it, and report what they think of it. The apron provides for no sleeves, it is true; but I believe it is more convenient to have detachable sleeves—if this is what you call them—as described by Miss Wilson in a former article, page 10, Jan. 1.

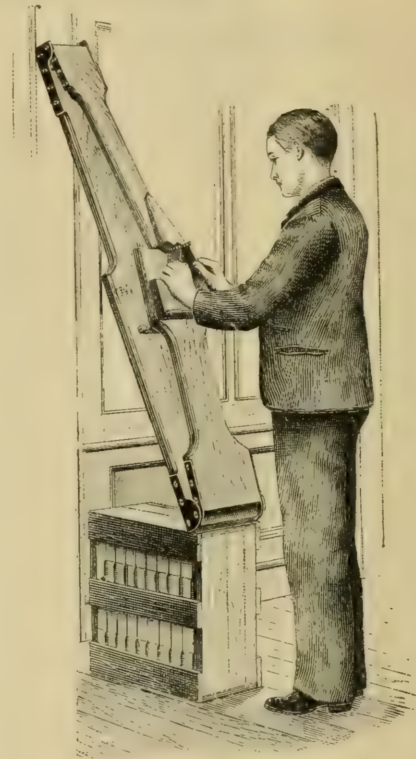
No, Miss Wilson, we will not make fun of you, even if you do make an apron of bed-ticking, of such a neat pattern. Those large pockets will be very handy for small tools, bee-brushes, handkerchiefs, etc.

In regard to those artificial cell-cups, we shall be glad to hear from those who have made them a success; and perhaps by discussing the matter a little, we shall find where the trouble lies with some of us. Even our boys here at the Home of the Honey-bees were not entirely successful with them.]

THE HUBBARD SECTION-FORMER.

AN EXCELLENT DEVICE.

A few days ago we received a letter from Mr. G. K. Hubbard, of Ft. Wayne, Ind., to the effect that he had sent us one of his section-formers by express, prepaid. He also expressed the conviction that we would be well pleased with it, and desired us to give it a thorough and most careful trial. The machine came to hand, and subsequent testing showed that Mr. H. was not far from right.



HUBBARD'S SECTION-FORMER.

The engraving shows the manner of operating the device. The operator should have an empty basket on his right-hand side; and on a stool at the left should be placed a box of sections ready to be folded. Both basket and box should be near at hand, so that all unnecessary reaching may be avoided. To operate, pick up a section, draw the two ends together, insert it in the section-former, and with a quick, gentle push, against the bridge, as it were, the corners will be crowded together quickly, easily, and neatly. Throw the section into the basket, and pick up another blank from the basket. The levers are so long that but very little power is required; and we find, by operating it in our establishment, that it is the best and easiest machine we have ever used; and, besides, it does the nicest work. Why, it is such a pretty thing to operate that I could not resist the temptation to fold up half a box of sections, just for the fun of the thing. The machine is so constructed that it is adjustable, so as to be made to squeeze the sections hard or easy. For particulars, apply to Mr. Hubbard, as above, or it can be obtained of us. See Special Notices.

E. R. R.

HOW TO BE YOUR OWN CARPENTER, ETC.

DR. MILLER GIVES US SOME VALUABLE THOUGHTS IN THIS LINE.

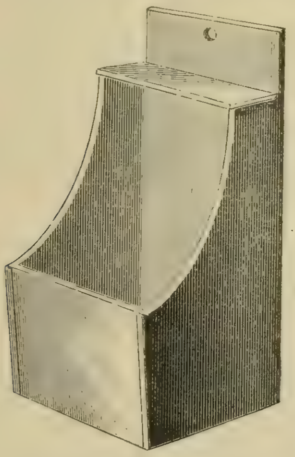
I like the "Practical Hints" on page 20. May I say something in the same line? Friend Root says, "Put a ten-cent knife in each pocket." Of course, he means in one of the pockets of each pair of pants, so that, if you forget to change when you change your suit, you will not find youself without a knife. It may seem a little thing to quarrel about 5 cts. in the price of a knife, but I never saw a ten-cent knife that was satisfactory. I generally have two or three of the fifteen-cent Barlow knives, and you can keep on them an edge as keen as a razor. The only trouble is, they are so high-tempered that, if you are not careful, you will break nicks out of the edge in whittling hard wood. As they have only one blade, I carry another knife for its small blades.

"Almost any sort of saw will do if you keep it in order." Yes, "if you keep it in order." But the trouble is, every sort of saw can't be kept in order. I paid a dollar for a saw that isn't worth a dime—so soft you can't keep it sharp. It's economy to get good tools.

"A sharp leadpencil in each pocket." It may be tolerably sharp just at the point, but you can't carry in your pocket a pencil with any thing but a very short point. If you do, it will break off.

"Never saw a board off without a mark made with your try-square." I think that hardly means to use a try-square on a board a foot wide. The carpenter's square for that.

Driving nails is so important a part of a bee-keeper's work that it is worth while to say a good deal about the minutiæ. I have had much experience in it, and yet I suspect there is much for me to learn yet. I'd like to find a good book on driving nails. Friend Root speaks of a hammer that suits you, and an assortment of nails. I'm sure he'll tell you that you need an assortment of hammers just as well as an assortment of nails. A hammer fit for a six-inch spike would be a poor thing to drive a half-inch nail; and a hammer just right for a half-inch nail wouldn't drive a spike at all. An adze-eye hammer is the cheapest in the long run. So is a good-priced hammer. A cheap hammer with a soft face is a nuisance. In a little while it is all battered up and one-sided.



DR. MILLER'S NAIL-BOX.

Have your nails where you can pick them up handily. Don't try to use them out of the paper in which you bought them. If I am doing a long job of nailing, I like a saucer to hold them. For very small nails a plate is good, having on it rather few nails, so that they will lie scattered so as to be easily picked up singly. Sometimes I am doing a long job of nailing, having no convenient place to put my nails without danger of tipping them over, and a lot of spilled nails is somewhat trying on the temper. In such case I often use the cover of a large blacking-box. Drive a ¾ nail down through the blacking-box cover, so as to hold it firmly in its place, even if it stands on the edge of an inch board. But for a regular place to keep my nails I have a set of nail-boxes hung on the wall. I got the idea from seeing some metal ones in a tin-shop. I put nails in the wall to hang them regularly upon, beginning at ½, ⅝, ¾, and so on. I am sorry to say, that so many have been handling them that they are not all now in their places. Mine are made of wood, just such as I had most handy. They can be varied in any way, but the general principle, I think, you will like. Mine are made of ¼-inch stuff, division-boards of Heddon supers.

1 piece 10½x4¼.
2 pieces 8x4¼.
1 piece 4¾x4¼.
1 piece 4¾x3.
1 piece 4¾x1¼.

Nail the two pieces that are alike on the long piece, letting them come flush at one end, then on that end nail the largest piece that is left. At that same end, nail on the piece three inches wide, and at the other end nail on the remaining piece, letting it come close against the long piece. I used ¾-inch wire nails to make them, putting them in about ¾ of an inch apart. Then whittle out the sides where nothing is nailed on them, and make a hole in the projecting end of the long board, by which to hang it on a nail on the wall. It is always ready for immediate use. All you have to do is to take it from the wall, and lay it on the long side, giving it a shake to bring some of the nails down on the bottom (or back).

If you have a lot of stuff cut ready to nail together, the sooner it is nailed the better. The ends dry out, and then it will split in nailing. I once had such a lot of stuff that had lain a year or more, and, no matter how careful I might be, it would split in nailing. I then got a tub of water, soaked the ends three or four hours, and had no trouble. Of course, all the ends had to be soaked alike or they would not fit.

If a nail needs to be straightened a little in driving, do it with the claw of the hammer.

If you have any difficulty in driving straight enough so that nails will not come out at the side of your board, let the board have its edge toward you. The eye will detect any variation from side to side, but will not easily tell if the head of the nail bends to or from you.

Marengo, Ill., Jan. 6. C. C. MILLER.

[Well, well, doctor! who would have thought that you knew so much about driving nails, and making things? Why, I always supposed that you kind o' stood around and let other folks do the work—at least, when it came to nice carpentering. Why didn't you show me those nice nail-boxes? Who in the world studied up that idea of tipping the nail-box over on its back (like laying the baby on the floor, for instance) so the nails would scatter down, one at a time, and not prick your fingers? I am *sure* you might have that nail-box *patented*. Now, doctor, the ten-cent knives that I talked about have exactly the same steel in them that the fifteen-cent Barlow does. You are just like ever so many bee-keepers. The Barlow knife is your *hobby*, and therefore you have got it into your head that no other knife will even whittle. Never mind; it is not a very bad hobby, after all. In regard to saws, I do not think I ever had one that would not do good work if it were properly filed and set. It may be, however, that hard seasoned wood like oak might turn the teeth of a soft-tempered saw. Carry an *automatic* pencil, of course, and just slip the sharp point back into the tube when not in use. Your hints on driving nails all commend themselves to good common sense. Why, doctor, you have told me a good many things that even *I* did not know before. Isn't that wonderful? Your suggestion as to the cause of the wood splitting when the nail is driven near the end is also new to me. Nothing vexes me much more than to see wood split in nailing; and yet I have sometimes thought that there was no help for it except to get the bradawl, and you coolly inform us that we can have a perfect remedy by soaking the ends well in water. I presume you forget, doctor, that our price list pictures a nice assortment of hammers, all the way from one small enough to drive a common pin its whole length into a pine board, up to the size of one that will drive a forty-penny wire nail.]

STILL ANOTHER OUTSIDE CASE.

HOW IT IS MADE, AND ITS SUCCESS.

How to convert the Dovetailed hive into a chaff hive quickly and cheaply: Make the bottom-board 19x25, so it will project 2½ inches on all sides. Now make a box 19x25 one foot high, without top or bottom, of half-inch lumber. Take off the summer cover, but leave on the honey-board. It is *better* than a Hill device, for it excludes mice. Spread a piece of burlap over the top; set this outside rim around the hive, and there is a space of just 2 inches between the walls all around for the chaff. Of course, a bridge should be fixed at the entrance so the bees can come out and fly.

For a cover, use the gable cover and you have a hive that is cheap yet handy.

I do not go into details, because it is not necessary. The average bee-keeper is intelligent enough to make them to his own fancy. I have packed bees this way for three winters, and have yet to lose a colony; while those I wintered in the cellar would die in midwinter, or spring dwindle if they happened to pull through. It is less work to pack them in the fall than it is to carry them into the cellar and out again, and then pack them for spring protection. They will eat more honey out of doors than in the cellar, but they are stronger, more energetic, and will gather enough more the following season to more than pay for extra food used in wintering. Strong colonies, ripe honey, chaff packing, and upward ventilation, constitute successful outdoor wintering in my locality.

RESULT OF THE SEASON.

I had eleven colonies, spring count; 22 by natural swarming. I obtained 200 lbs. of comb honey, 400 lbs. extracted. All the bees are in splendid shape for winter. Although I had less than half a crop, I feel more like rejoicing than complaining, considering the utter failure of others. Captured 7 first and 6 second premiums at our county fair—$12.00. H. L. HUTCHINSON.

Mayville, Mich., Jan. 24.

[Last fall we put about a dozen colonies, packed almost exactly in the way you describe with the exception that the bottom-board does not project. The shells, or rims, are pushed into sawdust around the bottom-boards. They are working nicely so far, as also are the 28 in the dead-air-space shells.]

HILTON'S LETTER.

WHAT I SAW AND HEARD IN GRAND TRAVERSE COUNTY.

Bro. Root:—I think while we were at Detroit you said you wished I would write up my visit "up north." Well, after looking over the enterprising town of Traverse City I wended my way down that historical peninsula now known as Peninsula Township. This wonderful piece of God's footstool is eighteen miles long, and will average perhaps one mile wide. There is but one road, and this runs in a romantic way, now on the ridge overlooking two of the most beautiful bays I ever saw, the water being so clear that you can see the bottom at a depth of twenty feet; then we are driving along close to the water's edge, or, if you please, in the water, for the shores are so shallow and pebbly that you can drive almost anywhere. At the extreme point is what is known in history as "Old Mission." It is now one of the finest fruit-farms in the State, and has recently been sold for a fabulous price. The whole peninsula is fast becoming one of the finest fruit and honey belts in this grand State of ours. One peculiar feature to me was, that, the further down the peninsula you go, the heavier the timber and soil become.

My first stop was about two and a half miles from the city where lives our genial friend J. P. Berg. He has a bright family, consisting of a wife and five children. I found them all as busy as beavers, and I came away convinced that they would never rust out, either in things pertaining to this world or the next. Friend Berg has about forty acres devoted to fruits of every kind adapted to his climate and soil. Space will not permit me to enumerate them here. He also has about 75 colonies of bees. About half of these are in single-walled hives, in the finest cellar for the purpose I ever saw. The rest are in chaff hives on summer stands; but he informed me he would eventually put all into chaff hives, as they wintered better, and were strong earlier in the spring. With the short seasons they have there it is absolutely necessary to have them strong at the beginning of the honey-flow. Mr. Berg has a number of your Dovetailed hives, and thinks that, as a single-walled hive, they stand at the head.

THE HOME OF MR. BERG.

At supper time I was asked to give thanks, and was both pleased and surprised, as soon as I said "amen," to hear the eldest daughter, then the next eldest, down to the little tot that could not talk plain, ask a blessing in their own language, German. I stayed with them two nights, and each morning was asked, after breakfast, to read. I selected from my favorite book, Luke, and occasionally stopped and talked of the events therein recorded, after which Bro. Berg offered a fervent and eloquent prayer. This was followed by the children, as at the table.

As friend Berg is a subscriber to GLEANINGS, and, if printed, this will come to his notice, I hope he will not feel that I am intruding upon the sanctity of his home. Would to God there were more such!

In the morning, "old Grey," a noble animal, was brought to the door before the fruit-wagon, and I was started on my journey down the peninsula. My next stop was at Mrs. N. H. Johnston's. She has, I think, about 60 colonies of bees in single-walled hives, and they were all snugly tucked away in the cellar. I understood her bees were blacks and hybrids; but she assured me the greater part of her honey came from red clover, and that her bees would leave the white clover for the red.

After a pleasant visit here I journeyed on to Mr. Wm. J. C. Davis' home. This is about twelve miles down the peninsula, and situated on the shores of the south bay. Mr. Davis has recently moved from Wexford County; has fifteen colonies of bees, and shows his preference for Italian bees and chaff hives. They insisted on my staying to dinner, and here for the first time I ate red-clover honey gathered by the honey-bee. I have robbed bumble-bees' nests. Mr. Davis fully confirmed all Mrs. Johnston said in regard to the bees working on red clover. He is an intelligent, well-read man, and he assured me the floweret of the clover grows shorter there than further south, making it possible for any bee to work upon it.

Mr. Davis is well protected by high hills on the east, west, and north, and is fast getting his farm into fruit. His place is especially adapted to early gardening, with no fear of drouth, as he can turn a spring brook across the place almost anywhere.

There are many strange and wonderful things on and around this peculiar strip of land, that I should like to talk about, but space forbids. Perhaps I can at another time. On one little spot out in the north bay lives the Robinson Crusoe of Michigan. The land is not located on the maps, consequently he pays no taxes, and can not vote. His history as it comes to me is an interesting one. I should have very much liked to visit him and several others who keep bees on the peninsula, but my time would not permit. But I am going again some time, and in the summer if possible, for it must be a veritable paradise then. GEO. E. HILTON.

Fremont, Mich., Jan. 23.

[Friend H., we are very much interested in that wonderful peninsula; and it rejoices our hearts to know of all such Christian homes as you describe. And, by the way, we want to know more about the Robinson Crusoe of the State of Michigan. There are quite a few of us who have not yet forgotten the enthuiasm with which we read the real Robinson Crusoe.]

AIR-SPACE VS. PACKING.

EXPERIMENTS, WITH THE RESULT IN FAVOR OF THE AIR-SPACE.

I made and used chaff and double-walled hives for several years in Southern Indiana. I made the best chaff-packed hives with three to four inch packing of oat chaff, and made some with dead-air spaces of the same spaces, and I found that bees did as well in the air-spaced hives as in the chaff-filled ones; and, further, in damp weather the air-spaced ones were the dryest, and emitted no damp or moldy smell. They were all furnished with tin roofs, well painted, and the walls of all were well painted with white lead and oil. Subsequently I reduced the air-space to two inches, using a partition of building-paper, making two spaces of one inch each, which I found did better than either of the others.

I came south to Florida, and did no more in experimenting with the make of hives until lately, when I have been experimenting some again with double-walled hives here, and I find them very profitable even in this climate.

DEAD-AIR SPACE FOR REFRIGERATORS.

You have no doubt observed the double glass in some of the coach windows, and that no frost will form on such double-glass windows, and it is the same with the thin wooden walls. I have also made a few small refrigerators with thin walls with several spaces of about ⅛ inch, made by using building-paper, and I find that a given quantity of ice will keep as long as in any packed walls of even double the thickness. I have also observed, in brick walls of dwellings, where the walls were laid up with a hollow wall, or a space of about two inches, with just sufficient tie-brick to keep the two walls secure, that the walls are drier in wet weather, cooler in hot, and warmer in cold weather, showing, beyond a practical doubt, that dead-air is a better non-conductor of cold, heat, and moisture, than any packing that we can practically use, and certainly it is the cheapest.

CARRYING POLLEN IN FLORIDA.

Our bees have been busy most of the time since Christmas carrying pollen and honey from the maple, which is in bloom. It lasts here usually about six weeks, and starts the bees to breeding very nicely. The willow comes in about the first of February, and will reach to orange bloom in March. This is a very favorable location for bee-keeping along the St. John's River. We have had considerable cold this winter, with some frosts, but none severe enough to damage the orange-trees or the fruit on the trees.

THE CONTEMPLATED U. S. EXPERIMENT STATION FOR THE SOUTH.

It appears from reports sent out that the U. S. entomologist contemplates establishing an apicultural experiment station somewhere in the South. It would be a great help to Southern bee culture, as we are left almost alone here to work out our own destiny, and that of our bees. We are unable to make experiments alone. Here in South Florida are vast fields of research, open for the experimenter. The season is much longer here for such work as breeding and the crossing of the races, and early enough to rear queens and send north to test as to their good qualities; and, further, there could be places where the different races could be reared in absolute purity, as here are many islands around the coast of 1200 miles where their isolation would be absolute. J. CRAYCRAFT.

Aster Park, Fla., Jan. 17.

[Friend C., I am very well aware that double panes of glass, especially if the glass is puttied in, will make an air-space that is better than if the space were filled with chaff—or just as good at least. A hollow wall made of bricks and mortar is right in the same line. It is practically air-tight. The air can not change places with that on the outside. I suppose a bee-hive *could* be made out of lumber, with a dead-air space nearly air-tight. But if you use boards wide enough for the side of a hive, they will be quite sure to check, sooner or later. Then the frost gets through, and the air inside circulates with that outside, so the temperature is about the same. With our chaff hive, as I have so many times said, we prefer the walls made of narrow strips, somewhat corn-crib fashion. This is to admit moisture to pass out freely, just in the same way the old-fashioned straw hive permits the moisture from the bees to work through, and just as woolen clothing lets the perspiration from our bodies get through. But without the chaff packing, the air, moisture, and every thing else would get through altogether *too* fast. Now, by filling this space with loose dry chaff, air can still get through, but very slowly, just as it gets through the woolen clothing on our bodies, through the fur of animals, the sawdust used in an icehouse, etc. Now, if we can make hives with dead-air spaces so as to answer just as well as chaff, will they not cost more money? and at the same time do we not lose this desirable quality in a bee-hive that we have in the old-fashioned straw bee-hive, and all porous nonconductors of heat, such as I have described? If an ordinary chaff hive will winter bees, and enable them to breed up in the spring during a series of years just as well *with the chaff left out* as with it in, then there is no use of putting chaff in any longer. May be we had better ask the experiment stations to institute some tests. Here is a point for friend Larrabee and Prof. Cook.] A. I. R.

THE BEE-KEEPERS' UNION.

SHALL IT BE UNITED WITH THE N. A. B. K. A.?

As a member of the Bee-keepers' Union, I say *no.* The two associations don't belong together. The N. A. B. K. A. is composed for the most part of annual members who join when the association happens to meet in their neighborhood. There are a few who go every year, but the number is very small in comparison to the number that belong to the Bee-keepers' Union, and the latter has not one-tenth part of the members that it should have. I don't see why it is that so few bee-keepers are willing to join, when the Union has done so much to defend our rights. Every bee-keeper in America is benefited by the Union. Then why not join and help the good work? Just put in one dollar a year, and be in a position so that, if you get into trouble, you can call on the Union to help you to defend your rights.

There is a great deal of prejudice and superstition about bees, and many think that the bee-keeper is stealing his living from other people's property. They claim the bees have no right to come on their land to gather honey. The land is theirs, the crop is theirs, the honey is theirs, and we have no business to let our bees go on to their land to gather honey. If the bees take the honey, the pasture is not as good, or the hay has lost a valuable part of its nutriment if the bees take the honey out. Some men kick because the buckwheat failed. They say the bees blasted it by taking the honey; others say the bees have spoiled the apple crop. Some say the bees injure the corn crop by working on the tassels to gather pollen, and there are a great many other things that I hear advanced every year—just such nonsense about something in connection with the bees. Now, let one of those supertitious men get mad at you. He wants to spite you somehow, he doesn't care how. If he thinks there is a possible show for him to make a case he will sue you for damage done him by your bees. All there was to the Freeborn case was spite and ignorance. The man claimed that Freeborn's bees worked on his clover, and kept his sheep away so the sheep became poor, and died the next winter in consequence. This was the first case that the Union had to deal with, and was thrown out of court, giving the Union its first victory. The Union has had several cases since then, all victorious. If you join the Union, you are entitled to help in case you are sued by any of these ignorant chaps. We ought to have 5000 members; then we should have a sum in the treasury that would command respect. Now is a good time to join. Commence with the year. Send your dollar to Mr. T. G. Newman, 246 Madison Street, Chicago, and become a member of the Union. Do it now, before you forget it. In union there is strength. A man may be a bee-keeper and be a poor man. Now, you see some of his spiteful neighbors may take a notion to pitch into him, knowing he is poor, just to annoy him and make him expense. But if they knew he belonged to the Union, and he had an army of bee-men to fight the battle with him, they would let him alone. There have already been several threatenings hushed up because the bee-keepers' enemy had to look the Bee-keepers' Union in the face.

About the N. A. B. K. A., I think it is a good institution. I am sorry that I have not been able to attend the meetings. But it costs money to go, and this year money was scarce with us. About a dozen of us tried to get cheaper rates on the railroad, but failed, and so did not go. Next year it is away down in Albany, and, of course, but few from these parts will be there, and so it goes skipping about from one place to another, all over the continent. Well, that is all right. The very name of the association calls for its moving about from place to place. But, no matter where the meetings are held, we can all get the proceedings in printed form, and I value these very highly. But unless we attend we miss the social part of the meeting, and the social part would be a big treat to me. But I don't see how we can mix these two institutions together. They are very different. The Bee-keepers' Union doesn't have to meet anywhere to carry on its business. We pay our dues, and elect the officers by ballot. All is done through the mail. I don't see how the Union could be benefited by a union with the N. A. B. K. A. Will Dr. Miller, or some other one who advocates the plan, explain?

HONEY-PACKAGES FOR EXTRACTED HONEY.

In Feb. 1st GLEANINGS, page 96, Messrs. Hildreth Bros. & Segelken recommend kegs, half-barrels, and barrels, except California, and I don't see why California should be an exception. The editor says, in his remarks, that square cans must be used in California because the climate there will shrink the wooden packages. In fact, kegs would be utterly useless with them. With the experience that I have had with kegs and barrels, I am positively of the opinion that it is a mistake that Californians can not use kegs or barrels for honey. If the barrels are made from perfectly seasoned white oak, or some other timber as good, no soft timber, and hooped with heavy iron hoops, then season the barrels six months in an upper story of some good weather-tight building, then drive the hoops, and see that the barrel is tight, air-tight (don't put any water into it), you are all right. Now, if your barrel is air-tight you can easily find it out by blowing into it with your mouth through the vent-hole. Blow in all the air you possibly can, and then slip your finger over the vent and hold it there tight for a minute or two; then take off the finger. If the barrel is tight, the air will come out whistling. You can put honey in that barrel in California, and ship it or keep it as long as you please. I don't think white-oak timber will give honey any bad taste. I have used it for 20 years or more, and have never heard any complaint. Ash timber is not fit for honey-packages. The honey will work through the grain of the timber. I have tried pine and basswood timber for honey packages, but I don't like either. There is nothing that suits me as well as good heavy white oak, with heavy iron hoops. I don't like the 60-lb. tin cans. I got ten pairs of them a few years ago, and have some of them yet. Two years ago I filled some of them with honey. They had to be filled full to hold the 60 pounds. Then I had some of them the next winter, and wanted to get the honey out. I put one at a time in a clothes-boiler over the stove, with water in the boiler to melt the honey. I took off the screw cap. The honey was candied. When it began to melt it began to run over. The hole was so small that I could not get any honey out except with a teaspoon—too much of a job. I would not put over 58 lbs. in them again. I like a good barrel with a few 50 and 100 lb. kegs, to retail. Barrels are easy to handle; you can roll them, and save lifting. I have shipped a great many tons of honey in barrels, and never had any leak. E. FRANCE.

Platteville, Wis., Feb. 4.

[I think I can agree with you, friend France, in regard to the inadvisability of merging the Bee-keepers' Union into the N. A. B. K. A. Under its present management, and with its small membership, the Union has done a magnificent service. Could it do better under the wings of the North American? I doubt it.

It is true, there is a kind of ignorant prejudice that some farmers and others have, that bees injure their apple-crops. At our Shane yard, located in an orchard, an old farmer intimated that, since the bees had been there, they had not been able to get any apples. I showed him that there were others who had no bees near them who got no better crops. The facts were, if the bees were removed entirely the crop would not be as good. It is a remarkable fact, that, whenever there is a good yield of buckwheat honey, there is always a good crop of grain. A poor yield of honey is accompanied by a moderate yield of grain. I am glad to get your testimony in regard to barrels. But I am of the opinion that, if you were in that dry climate of California for awhile, you would find it would shrink almost any thing; but your hints about having the barrels stored for six months in a dry place and then testing them with air instead of water are excellent.] E. R. R.

CONTRACTION.

THE RIGHT AND WRONG KIND.

Friend Root:—GLEANINGS for Feb. 1 has just come to hand; and while looking it over, I find some ideas near the top of page 88 that need answering, or a little explanation, from a contraction standpoint. It says, "The tendency of the times is against contraction to less than eight frames. It is far better to have a big, rousing colony on eight frames, than a medium one on four or six frames."

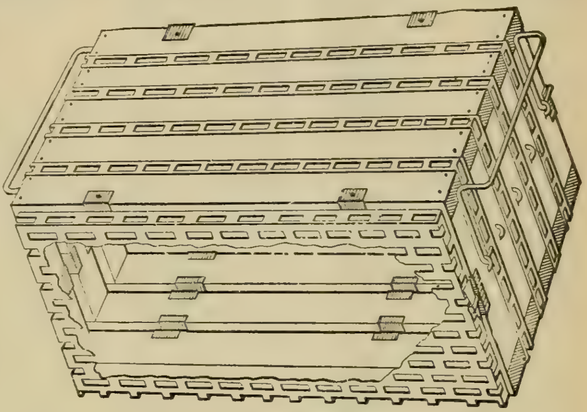
Now, suppose you have a colony and I have a colony, and the honey-harvest begins about the 25th of June and lasts until the 15th of July, you may give your colony the freedom of eight frames all the time, and I (in accordance with contraction methods) will give mine the freedom of eight frames all the time *until* June 15th or 20th, when I contract the brood-space to five frames. Would not my colony be as rousing as yours at the time of contraction? Would not my colony continue just as populous as yours for at least 21 days following the contraction?

I have not known a honey-harvest in the Northern States to last 30 days—scarcely 20; but even if the harvest lasted 30 days, the 9 days of brood production in the three questionable frames could not add to the storage of honey, because of lack of age of these bees.

I have often thought that the young bees that hatch from the five combs may be as sufficient to perform the labors within the hive as any larger number; or, in other words, they may be able to prepare the combs and store all the honey the force of outside workers may bring from the fields.

One of the principal aims of contraction is to get a rousing eight or ten frame colony, and then compel the bees to go into the sections. Contraction is really not much of a success until we get a "big rousing colony."

Now, I am a firm believer in contraction; still, I use a brood-chamber with four frames more than yours—that is, twelve frames. Up to swarming last year, I tried my best to have the queens fill all of the twelve frames with brood. Eight frames proved to be an average of the best they could do. At the opening of the honey-harvest I arranged queen-excluding zinc above and a queen-excluding zinc division-board on each side of the four center frames of brood, and placed the queen upon them. Then as there was no brood in the two frames that were in the remote ends of the hive, they were taken out and the two frames of brood on each side of the excluding division-boards were moved toward the ends of the hive, and a wide frame of sections sandwiched between them and the main brood-apartment. The sections were filled full of foundation. It required only about two days for these sections to be filled with combs ready for the honey. When the sections were half or two-thirds full of comb and honey they were taken from the wide frames and put in supers on the top of the hive, and new sections took their places in the wide frames. Twenty colonies were managed thus. At the close of a light harvest of seven days, each colony had a crate of 28 sections nearly finished, and five or six colonies had two crates each in similar condition.



DAYTON'S QUEEN-RESTRICTOR.

At the time this contraction was begun there was also put over each of sixteen picked colonies a rack of 28 sections, two or three of which sections contained combs as "baits." Of these sixteen colonies, only one went into the super to work foundation at all, and the rest came off as dry as when put on.

A bee-keeper, Mr. Guest by name, called a few minutes ago to talk bees, and said, "I think contraction must be what I lack. I worked ten days to make the bees go into the sections last year, and then failed."

At the top of page 88 it also says, "Pollen in the sections is usually the result of too much contraction of the brood-nest." It is because of a wrong kind, or of not enough contraction. Keep the queen upon four frames by zinc division-boards, then keep a brood-comb to catch pollen on each outside of the zinc division-boards, then put in wide frames of sections, and then frames of brood, and you will find the pollen near to the queen and the young brood.

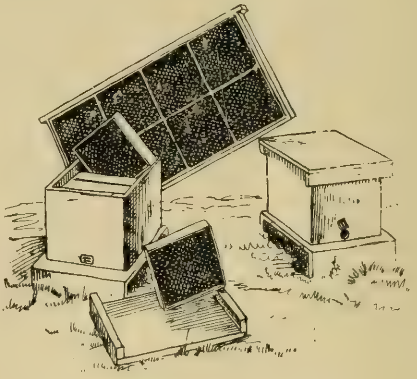
Clinton, Wis., Feb. 4. C. W. DAYTON.

[As you put it, and in your case, I do not know but I should have to make an exception; but for the average bee-keeper, I think that my remarks still hold true—that a big rousing colony on eight frames is far better than a medium one on from four to six frames; and after all, friend Dayton, it is considerable of an art to manage so as to make contraction a real benefit. If the season turns out just as we think it will, and if we have the requisite skill, all well and good; but too often contraction encourages swarming. Reducing the capacity of egg-laying, as a general thing, makes the bees dissatisfied. An unlimited capacity is quite apt to discourage, if not to prevent entirely, all swarming. Neither the Dadants nor Mr. E. France, who work on this latter principle, have swarming to any extent, and they do get the honey, you know. Now, it seems to me there is a happy medium between the two extremes—between the ten or twelve frame colony and the four or six frame colony; namely, the eight-frame hive. But you mention one advantage, and it is an important one too; namely, that by judicious contraction at the right time, and the use of perforated zinc, we may be able to get a large force of bees for the honey-flow, and yet very materially cut down *unnecessary* brood-rearing following the honey-flow. Your queen-restrictor will work nicely, no doubt; but is it not a great deal of work? Why wouldn't it be easier and less work to use shallow Heddon hives; and when you restrict egg-laying, do so by means of horizontal divisions rather than by perpendicular and horizontal divisions as you do? You are obliged to have zinc in between the end-bars of the wire frames and the top and bottom bar, as well as the two sides. You can contract by the Heddon plan by simply putting the perforated zinc board above and below one section, and the whole thing is done.] E. R.

RAMBLE NO. 38.

E. L. PRATT'S SYSTEM OF QUEEN-REARING.

Within a few years several young bee-keepers have come to the front, and, by their activity, are making quite a stir in the apicultural world; and although it has a shade of unpleasantness to us old duffers, we shall have, sooner or later, to take a back seat. Among this class of progressive young men is Mr. E. L. Pratt, recently of Marlboro, but who has now located at Beverly, Mass., less than two miles from Bro. Alley. Mr. Pratt is well known to the fraternity as the editor of the *Queen-Breeders' Journal*, which had a short but brilliant career. But Mr. Pratt's pen is not idle, as we often see his marks in the various journals. He has an apiary of 90 colonies, and will run them largely during the coming season in rearing yellow Carniolans. His system is much like Bro. Alley's, but his nucleus hive is constructed upon a different plan. The photo shows the hive and frame very plainly. The small frames are made by slitting in two a two-inch 4¼x4¼ section, and filled with comb cut from ordinary frames. The little hive contains four of these combs. Eight, as seen in the photo, will fit into an ordinary L. frame, thus enabling the combs to be changed from a nucleus to a full colony, which is a very good feature for rapid manipulation. The little frames, instead of hanging in the little hive, rest upon proper supports in the bottom. Perforated metal is used over every entrance, thus ensuring certainty of fertilization.



PRATT'S QUEEN-REARING HIVE.

At the close of the queen-rearing season, the little combs can be put into a large frame, and several be given to a full colony, with no detriment to the colony, but a kindness to the little pets that have been a profit to us during the beautiful summer days. Mr. Pratt has issued a neat little pamphlet describing his methods, which we judge he would be willing to send to those who wish to give his system a further study.

But train time drew near. Bro. Alley, Pratt, and the Rambler, arose from their very pleasant triangular talk, and Bro. A.'s horse hustled us over that half-mile at a lively gait. Our farewells were spoken, and with a final wave of the hand we were soon out of the pleasant village of Wenham, perhaps for ever; but we shall ever remember the pleasant hours we enjoyed in the famous Bay State Apiary.

THE WAY ALLEY GETS THERE.

As stated in our last ramble, our thoughts kept dwelling upon the subject of egg or larval queen-rearing, and our cogitations led us into the following review of the question. My first effort to get facts was to write to a large number of noted queen-breeders, from Maine to Texas, irrespective of race, sex, or previous condition. Answers were very courteously returned, and there was an almost unanimous answer for the rearing of queens from the egg, or, what is practically the same, just hatched larvæ. Only one raised a voice of disagreement, and claimed the 36-hour limit.

I therefore found that, as far as practice is concerned, the large majority were on or close to the egg plan; and the reason advocated was that the larvæ should early receive an abundance of food. The abundance of food is a very good thing to advocate; but upon this point I would give but very little for an opinion or an investigation that goes no further than the unaided eye can reach. Upon turning to our standard text-books I found this visible abundance prominently treated upon with more or less modifying points brought out by closer researches.

I also found two divergent lines of belief. The first class of writers would lead us to believe that especial royal jelly is given to larvæ designated to be queens from the very first moment of hatching. Class No. 2 advocates that all larvæ are fed alike until 36 hours old, and that a coarser food is given to the larvæ destined to become workers. As to which of these two classes is right, is, perhaps, beyond the reach of any one to definitely decide, until further researches are made; but we can quote opinions and tests as far as made, and find indications that point toward certain results.

When the investigator considers the wonderful changes that are effected, or, as Prof. Cook says, the "marvelous transformation—ovaries developed and filled with eggs; mouth organs; the wings; the legs; the sting—aye, even the size, form, and habits, all are marvelously changed," — that all this change has been wrought with merely an abundance of food, or a day's feeding, this, I say, is not a satisfactory explanation to him, and we find him studying the bee structurally, opening up to us a labyrinth of wonders which has been traced but a short distance toward its most intricate secrets.

Cheshire quite conclusively shows that larval food, or, at least, a portion of it, is a secretion from the lower or head gland, and that this food has the singular power of developing the generative faculty; but he is silent as to its chemical qualities.

We now turn to Cook, and find, on pages 89 and 117, Dr. A. de Planta quoted as showing from chemical tests that this royal jelly is different from the food of both the worker and drone larvæ.

If the royal food is different, as also hinted by other writers, when is it given to the larvæ? Doolittle, in class No. 2, says, after 36 hours; Cheshire, while substantially agreeing with this class, says, on page 289, Vol. 2, "The fact that queens are started from the egg in normal queen-cells is suggestive; but in addition it is noticeable that the amount of food given in the queen-cup exceeds that supplied to a worker, even in the initial steps." And on page 290, "The larvæ should be intended by the nurses for a queen from the beginning." Cook, A B C, and Alley, all stand in class No. 1, and would agree with the above quotation. I, however, find that Mr. Alley, who has been the most strenuous advocate of rearing queens from the egg, is tending toward class No. 2; for on page 171, last volume of the *Api.*, he says, "When eggs are placed in a queenless colony, the bees will not in all cases immediately commence to feed the larva for a queen." We also find Langstroth's Revised standing with class No. 2. As the case now stands, I find that class No. 1 are in the majority, both in theory and in practice; but I also find strong evidence that all classes are not satisfied with the investigations thus far, and would like still further light.

That good queens can be reared by both classes is a fact not to be controverted; and I think queen-breeders of every name and nature can show a long list of testimonials.

But the question ever recurs, Are we rearing the best type of queens? and if not, how shall we do it? The question can be answered only by a more searching investigation with the microscope than has heretofore ever been made. If we consult Cheshire we find the wonderful head gland No. 1, while fully developed in the worker, is only rudimentary, if at all, in the queen; but I quote: "It is peculiarly important to observe, that the higher the quality of the queen the further will she be removed from the worker in this matter—poor queens, hurriedly raised, really possessing this gland in an extremely rudimentary form, while those with the largest ovaries have even the plate imperforate, and no trace of a duct is discoverable." To the microscopist we must therefore turn for aid. If this duct is entirely absent in queens reared from larvæ 36 or 72 hours old, then they are good enough.

A series of close examinations would certainly teach us at what age to select larvæ for queen-rearing, which would be infinitely better than the present guesswork. Let us employ the microscopist. RAMBLER.

DOWN BRAKES!

L. C. AXTELL AGAIN ON CLOSED-END FRAMES.

Extremes exist in almost every thing, and I am not sure but we hear of as many who go to extremes in apiculture as in any other pursuit. I do not wish to belong to that class, and I really do not think I do. I notice in GLEANINGS that A. I. Root is whistling "down brakes" in regard to changing brood-frames; and from letters I have received relating to this topic since my article was printed in GLEANINGS on that subject, I am led to think he is right, and that there is danger that some may be led astray at the present time by what is said in the journals.

In the first place, I wish it clearly understood that I do not go back on what was said in my article on closed-end frames, and I firmly believe they have all the advantages claimed for them, and more might be said in their favor. Still, I do not think it would be wise for every person who keeps bees to drop every other frame. Those who are keeping but a few colonies of bees, as a general rule had better retain the frame they have in use, whether it be the closed-end or hanging frame, for the reason there would be so little difference in the amount of honey stored. Such as have the time, ample means, and a desire to experiment, let such test both kinds of frames, and give to others the result of their experience. But to all who are fully in the business as a pursuit, having *either style* of frame, and but one kind, I would say, *go slow in making any change*, at least until making a careful test. If only a part were changed, there would be the continual annoyance of two kinds—such an annoyance as I could not think of enduring. But in making an entire change in one or more large apiaries, it would involve a heavy expense. This, some could not meet without being involved in debt, while to others the loss in money would be more than all that ever would be gained in time saved or convenience.

Then, again, after using for years one method and one set of implements, even though the new were much superior, for a time at least they would be less wieldy and not satisfactory, and probably a wish many times that they had not made the change would be the result.

But to such as are beginners, and contemplate making bee-keeping a business pursuit, this point of closed-end brood-frames should, along with many other points pertaining to the pursuit, receive careful consideration and then be tested.

Nothing short of an actual test should satisfy. Obtaining the real hives with all that pertains to them, place them side by side in the apiary, put equally strong colonies in the different kinds; in this way, after a suitable length of time, each could decide for himself what would suit him best. No supplies for sale. I do not make hives, nor keep supplies for sale. Please do not send to me for hives or frames for patterns. L. C. Axtell.

Roseville, Warren Co., Ill., Feb. 12.

[I am glad of your caution. It seems to be a fact, that, when the merits of a new thing or an old thing revised are discussed, some one—yes, perhaps a good many, will rush headlong into it. I have suggested the wisdom several times of going slow. Some one will say, "Keep out the discussion altogether." That would not do. It is the business of bee-journals to bring up these things.] E. R.

[Permit me to add my most emphatic emphasis to the excellent points you make, friend A.] A. I. R.

GLOVES FOR BEE-KEEPERS.

MRS. HARRISON GIVES US SOME OF HER EXPERIENCE.

In Gleanings for Feb. 1, Emma Wilson requests those who have had experience with rubber gloves to tell how they like them. In the early days of my bee-keeping I asked a saleslady whom I knew, what kind of gloves they had, suitable for me to wear in an apiary. She placed before me a box of rubber gloves, saying, "Mrs. Harrison, this is exactly what you want—see how nicely they fit; just the thing for driving, and they will sweat your hands, removing all tan, and make them so soft and white." I paid the modest sum of $1.75, and went home rejoicing, and told the bees that I had gloves now that they could not sting through.

The weather was very warm, and I pulled on my gloves with a deal of pomp and ceremony, and went to work with the bees. In a short time I realized that I was very uncomfortable, and knew not why. I was very much interested in my work, and paid little attention to myself; and when I had finished I drew off the gloves and found them dripping wet. With a few times wearing they rotted out; and when I tried to mend them the stitches broke out; and ever since, when I see them advertised by supply-dealers, I feel like accusing them of fraud—they are a delusion and a snare.

I then procured the best-fitting pair of buckskin gloves, with gauntlets, that I could find, and sewed denim on them and an elastic, which keeps them in place, and bees from crawling inside. When these gloves get heavy with propolis I pick it off, which can be done easily with a little practice. When they wear through I mend them with soft leather cut from an old kid shoe. The wear all comes in the same place; and when the patches wear through, rip them off, pick off the propolis, mend up again, and they are good for another long season of wear. Whenever I work in the apiary without gloves I repent it; for if I am not stung, my hands are stuck up with propolis, and under and around my finger-nails; and using soap to remove it discolors my hands, and makes them rough and uncomfortable.

I had a friend who always wore linen mittens while working with bees, as bees do not sting through brown linen. I prefer gloves, and I would make them as a friend of mine did. She ripped up a pair of old gloves, for a pattern. Then she first cut out a pair from old muslin, sewed them up and tried them on. When she had them to fit exactly, she used them for a pattern and cut out a pair from brown linen. She wore them for driving; they could be washed and boiled; and as she had several pairs she always drove from home with clean ones. Mrs. L. Harrison.

Peoria, Ill., Feb. 4.

[O Mrs. H.! you have closed up your article, and did not tell us whether the rubber gloves took off all the tan or freckles, or not. How *could* you omit such an exceedingly important item? and who knows what a wonderful trade might have been worked up in rubber gloves if we could only have had a testimonial from you on this most exceedingly important point? May be I am mistaken, however, after all. Perhaps it was when I was a boy that our girls used to be so exceedingly afraid of tan or freckles. Well, I hope so. If you will refer to our price list you will see that we have continually, year after year, put in a protest. For some time I refused to offer them for sale at all, feeling so sure they were not needed. Notwithstanding this protest, however, there is quite a large business in rubber gloves, indicating that they are found valuable for at least some purposes. The driving gloves, I know from personal experience, are many times worth all they cost, where one is obliged to be out in cold wet storms; and since the matter has come up, I should be glad to have some brief testimonials from a great many, especially those who continue to use rubber gloves when handling bees. For keeping off propolis it occurs to me that cheap cotton gloves might answer, and perhaps they could be bought so cheaply that we can throw them away when they get badly soiled. If the quality will warrant, they might be washed in benzine and afterward in water, as you suggest in your closing paragraph. I never have bees sting my hands unless something obliges me to handle them at a time when they ought not to be handled.]

THE OHIO STATE BEE-KEEPERS' CONVENTION AT TOLEDO.

A FEW NOTES BY ERNEST.

Very unfortunately, my note-book gives only a few and scattering memoranda of the proceedings; and, moreover, our foreman of the printing department says I must be brief, as our space is all filled up already; and then he looked at the great pile of copy on the hook, not yet set up. Our friends of the convention will therefore please pardon me if it is short. I am compelled therefore to omit a good deal.

As soon as I arrived at the convention room I inquired whether Hutchinson and Hasty were present, and I was answered by being presented to the gentlemen in question. It was a rare pleasure to me to meet the one who had in years gone by made such beautiful translations of Virgil's treatise on bees, and one whose spicy writings never fail to give delight. As for Mr. Hutchinson, he is so full of enthusiasm and practical sense, that there were many things which I wished to talk to him about between sessions and at other times. He had betaken himself to an easy seat, and very evidently proposed to have a good time. At almost every convention he has ever attended, he has acted as reporter, but this time he proposed to be relieved.

These were not the only bee-keepers I hoped to meet; but they were the ones I feared might not be present, and whose presence we could not afford to lose. After we had had a pleasant little chat, Dr. Mason called the convention to order. We then listened to a spicily written paper by E. E. Hasty. I am unable to give the gist of it, because a summary would very inadequately give a glimpse of Hasty; but he showed very conclusively, from many instances, taken both from ancient and modern times, that honey is conducive to longevity.

In the afternoon we listened to an address by President Mason. After welcoming the bee-keepers to the city of Toledo he called attention to the fact that Ohio bee-keepers should take some action in reference to the Columbian Fair at Chicago. He alluded to the scheme that he had already made public, and published on page 58 of our issue for Jan. 15. He read a letter from J. W. Buchanan, chief of the Department of Agriculture at Chicago, in which the following questions were asked:

1. How many State associations will be represented?
2. To what extent will Canada be represented?
3. Should the entire exhibit in all its branches be installed in one department?
4. If so, how many square feet of space will be required?

To which Dr. Mason replied in substance, by number:

1. From 12 to 15; perhaps 20.
2. Largely.
3. Most certainly.
4. From 25,000 to 30,000 square feet.

A committee was appointed to investigate the matter, and make recommendations, and this committee reported, later, adopting the suggestions of the president, and recommended Miss Dema Bennett as State superintendent, under the advice of Dr. A. B. Mason.

A paper from Dr. C. C. Miller was next read, in regard to bee-laws. He called attention to the need of a few laws for bee-keepers, and referred to some that had already been enacted in Germany, in the interest of bee-keepers, and suggested the wisdom of our having something similar.

In the evening we listened to a paper on the subject of "How can honey-producers reach the trade? or, do we need a Union trade-mark?" by Miss Dema Bennett. The writer called attention to the importance of putting honey up in attractive packages, and exhibited some neat flint-glass screw-top jelly-cans. She did not recommend extracting honey from old combs, as it discolors the honey. Comb honey should be sorted in three lots. It should be appropriately labeled, and put in cartons. Put extracted up in tin pails. Every woman has a use for them. For groceries, a variety of glass packages should be used. Don't let glassed honey candy while on their hands, or somebody will call it castor oil; and don't allow the honey to get to leaking. Furnish grocerymen with photographs of your apiary, to show them that the product is produced honestly. As to a trade-mark, we do not need it. Some bee-keepers would abuse its use. She recommended an individual trade-mark. Mr. Hains uses some fancy printed cards, and on these cards is an engraving of his home apiary. Consumers always know that this honey is all O. K.

In convention, the discussion that followed showed that there was a dicided feeling against a Union trade-mark. It would be of no advantage to the honest bee-keeper, and might work injury to bee-keepers as a class.

J. B. Hains read an essay on spacing brood-frames, in relation to swarming. Mr. H. is the owner of from 500 to 600 colonies. He has them divided among some 13 different out-apiaries. His experience favored closer spacing. It resulted in more surplus honey and brood. Wide spacing gave more honey in the brood-nest, but very little in surplus.

THE ADVANTAGES OF USING FOUNDATION was the subject of a paper by W. Z. Hutchinson. It presented fairly both sides of the case, and certainly no one can say that Mr. H. was prejudiced in favor of the non or unlimited use of foundation. With foundation, he said we secure perfect combs; and if the securing of perfect combs is not the first and chief advantage, it is the next thing to it. If such combs could not be secured otherwise, it would pay to buy foundation at considerable expense rather than go without it. When he first wrote his little book he used empty frames of full Langstroth size in depth. The combs all grew at once, and he got good worker comb. In the Heddon hive, the plan does not work as well.

At the conclusion of the paper J. B. Hains and others insisted on full sheets of foundation for brood combs. Mr. Hasty argued for the non or limited use.

The subject of perforated zinc was discussed by volunteers. The opinion seemed to prevail that it was necessary in the production of extracted honey, and some even urged it for comb honey; and this brought up the subject of

BEE-ESCAPES.

Dr. Mason used the Dibbern style, and considered it a great boon to extracted-honey men. It did away with brushing combs, and made extracting much easier. In regard to perforated zinc, he must have it, because he did not want brood in the upper story. He wanted to have his extracting combs full.

In regard to wooden queen-excluding boards, Mr. Hutchinson remarked that he was probably the pioneer in their use. He said he had not discarded them because of the shrinkage of the wood, but because the bees would plug them full of wax. We was not of the opinion that those recently introduced by the G. B. Lewis Co. would prove to be a success, for that reason.

Near the close of the convention we listened to the report of the committee on statistics. It was ascertained that the average amount of honey secured by Ohio bee-keepers was 25 lbs. per colony.

Just before the close of the convention, J. Y. Detwiler, formerly of New Smyrna, Fla., begged leave to give the president of the convention a rough stick of black mangrove wood from Florida, and suggested that a good cane could be made of it. The remarkable thing about this wood was, that it was very heavy—so heavy, indeed, that it would not float on water. Mr. Detwiler requested that somebody be called upon to duly present the same to Dr. Mason. Some one called for Hasty. "What," said he, "right on the spot?" "Yes, yes," they said. Mr. Hasty stepped back, secured the cane, came forward, and then stood before the president. I wish I could give you his exact words, for he seemed to speak almost as if by inspiration, although it was evident that he had not had time for preparation. Said he, as nearly as I can recollect, "I hold in my hand, doctor, a piece of wood. Like yourself, it is a diamond in the rough. It can be made useful and ornamental. I see some blemishes in it. We all have our blemishes. I observe that it is very heavy—a quality that is indicative of its solidity of character, and a quality that is not altogether lacking in our president."

At the suggestion of Mr. Detwiler, that we take up a collection to finish up the cane, Mr. Hasty took out half a dollar, and several others did the same, and Mr. Eaton passed the hat to secure further collections.

Dr. Mason then responded in a very neat little speech. He had been president of a great many different organizations; he had been the executive for two years of the N. A. B. K. A., but no one thing had honored him more nor as much as this token of appreciation from the convention. He would receive the cane and remember it with thanks.

Those who attended the convention will remember this as one of the prettiest things that ever happened at any convention, and I regret exceedingly that no printed page can tell it as it really was.

The convention then adjourned to meet at Cincinnati. Charles F. Muth was elected president, and Mr. S. R. Morris, of Bloomingburg, O., secretary and treasurer.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE ARTIFICIAL-HONEY SWINDLE CROPPING OUT AGAIN.

I inclose an advertisement clipped from *The American Agent*, Dec., 1890, as I know your interest in protecting the welfare of our bee-keepers and honey-producers, and your activity in showing up such frauds as it tries to perpetrate upon the public. I should be glad to see your answer in GLEANINGS. W. BINGHAM.

Chapel Hill, N. C., Jan. 19.

Thank you, friend B. Here is the advertisement referred to:

HONEY.

I have a recipe for making honey equal to bee honey. I will send the recipe for one dollar by registered letter or money order. Big profits.

F. P. HARDING, Knightstown, Henry Co., Ind.

We hardly need tell the readers of GLEANINGS that the above is a swindle and a falsehood. Nobody ever yet succeeded in making an artificial honey equal to that made by bees, or any thing like it.

IMPORTANCE OF GRADING HONEY, AND WHEN TO DO IT.

Friend Root:—Always grade comb honey when you are cleaning up the sections for market, and never, under any consideration, put a section of second-grade in your case of gilt-edge. If you do, you will find, if you ship to the large cities and your salesman finds that one section, five times out of six your honey will be sold as second-grade, causing you a loss of about 3 cents per lb. I have seen large shipments of nice honey spoiled in this way by the packer saying to himself, "One or two bad sections in a case won't make any difference." But it often makes a difference on the wrong side of the ledger. As I said before, grade the gilt-edge all by itself and the second-grade the same, and third-grade all by itself, and then you can sell each grade by the case and get your price according to grade every time. I am pleased to see friend Ball's kind offer to friend Root in regard to the shipment of honey. Let us all say with friend Ball, "I shall be more careful about assorting and packing my honey after this." P. R. CYPHERT.

New Derry, Pa., Jan. 5.

[That is just it, exactly. On the principle that a little leaven leaveneth the whole lump, a little second-grade comb honey in a case (only one or two sections) oftentimes makes the whole case go for second-grade. It isn't fair, right, nor honest to mark a case "gilt-edge," or first-grade, and then slip in one or two second-grade combs. If the dealer discovers the second-grade sections in a first-grade case, he can hardly with fairness sell the whole case to his trade as first-grade, so he marks it second-grade, as he hasn't time to re-sort the honey.]

COMB HONEY ONLY IN SECTIONS; ALLEGED GLUCOSE HONEY.

I have been reading Mrs. L. C. Axtell's letter in Jan. 1 GLEANINGS, page 14. Toward the close she speaks of selling broken comb honey. Don't you think it a better plan to sell only honey in sections, or extracted? A lady friend was here visiting from Chicago. She said to me, "Don't let me forget to take back some of your comb honey." I said, "Can't you get it cheaper there?" She said, "Yes, but it was made stuff." The storekeeper she dealt with had it in pails, and she had bought it, and it would be a small piece of comb floating in syrup, sometimes of a different color than was in the comb, and she was sure it was adulterated.

Braceville, Ill., Jan. 5. MRS. BURR.

[Circumstances are such that a lot of broken comb honey is left in the hands of the bee-keeper. He and his family can't eat it all, and it's too good to feed to the bees. The groceryman can sell it for a little below the price of comb honey in sections. What's the harm of selling it in that way? I doubt whether the honey to which your friend refers was glucosed. It was probably pure honey. Did she have any other proof than that she guessed so?]

PAINTED MUSLIN IN PLACE OF TIN; OUTSIDE WINTER CASES, ETC.

As I stated in GLEANINGS last fall, I used a good stout manilla-paper cover well painted, and they so far have kept out all the rain, and, besides, are much warmer for the bees. So far my bees are packed with old newspapers and drop cover over hives. They are in fine condition—scarcely a dead bee. In fact, I think the packing superior to chaff; and it is cheap, which is an item to most of us bee-keepers, especially after so many poor seasons.

I see that E. T. Flanagan likes the Hoffman frame, only the cost is too great. This winter I have been making a closed-end frame which answers all purposes, and is remarkably cheap. I got good No. 1 pine lath, 1⅜ wide, and cut it into lengths in a miter-box for ends, using wire nails for the rabbet-rest. The frames are not so smooth and nice as you make, but they are good solid frames. One bundle of lath will make ends for 250 frames, or six bunches will make 1000 frames complete.

We have had continued cold weather since Dec. 1, and 48 days of sleighing—a real old-fashioned winter. T. G. ASHMEAD.

Williamson, N. Y., Jan. 18.

[Friend A., we are well aware that paper, cloth, and a good many other substances, when painted, will answer very well; but when it comes to handling hives, drawing them on wagons, etc., they are so apt to be torn and injured that I think most will agree that it is better to pay a few cents more, and use tin. I told Ernest, when he mentioned it, that the idea was once considerably used, and afterward abandoned, years ago.]

KIND WORDS FROM A COLORED BEE-KEEPER.

Mr. Root:—I never see or hear of any colored folks who have a little home and keep bees. I have 17 stands in the Simplicity hive. I like to hear my gal read your bee-paper. I don't subscribe for it. A bee-keeper that has a big apiary loans his paper, and tells me how to get the most honey; hives four-story; no swarm.

I love to hear Jane read about Home and Our Neighbors. One white man says, "Mr. Root got no use for a negro; don't believe he will take any notice of a letter from one."

Whistler, Ala. Doc Singleton.

[Friend S., your friend is very greatly mistaken in saying that I have no use for letters from our "colored friends." On the contrary, I have been more pleased to get your letter and kind words than any others that I often get hold of. May God bless you and your people in bee culture, in getting an education, and in learning to take care of yourselves. We give the letter just as it was received.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 179. *Are bees which have been wintered in the cellar as hardy as those wintered outdoors?*

I think so.
Louisiana. E. C. P. L. Viallon.

I think not.
Illinois. N. C. J. A. Green.

Yes, if well wintered.
Wisconsin. S. W. S. I. Freeborn.

From all that I can ever see, they are.
California. S. R. Wilkin.

I know of no reason why they should not be.
Ohio. N. W. H. R. Boardman.

I doubt it very much. They are certainly more subject to spring dwindling.
Ohio. S. W. C. F. Muth.

I do not know; do you? So far as I can see, they are.
New York. C. G. M. Doolittle.

Yes, sir; the bees are just as hardy. Cellar-wintered bees may have more brood than they can take care of after being set out.
Michigan. S. W. James Heddon.

They say not. The few I have had in the cellar seemed to compare favorably with those wintered out.
Ohio. N. W. E. E. Hasty.

I think not; but if properly wintered and cared for in the spring, they will do as well, and frequently better, than those wintered outdoors.
Ohio. N. W. A. B. Mason.

I think so, if wintered as well. When they seem weak, something was wrong with the cellar, the food, or the bees.
Michigan. C. A. J. Cook.

Hardly; yet there are plenty of seasons when they fare just as well as those wintered out of doors, but we occasionally see a season when a number of bees die shortly after being taken out of the cellar.
Illinois. N. W. Dadant & Son.

Those that winter both ways the same winter can tell better than I. But from what I hear from others, those bees wintered in cellars are more liable to dwindle in spring.
Wisconsin. S. W. E. France.

Hardier, provided they have wintered better; less hardy, provided it is the opposite. The constitution of the bee will stand a certain quantity of hardship; and when that has been endured, it dies.
New York. C. P. H. Elwood.

Yes, though I once thought differently; but if put into outer cases when taken out of the cellar, they seem to do as well as those wintered out. Hence, wintering in the cellar does not seem to weaken their constitution, when treated the same as those wintered out.
Vermont. N. W. A. E. Manum.

Bees set out of the cellar in March may not be; but keep them in until warm weather comes to stay. One year a freeze came April 5th, and killed outright a pear-tree in bloom, and many colonies. Those in the cellar, put out afterward, were stronger than those wintered upon their summer stands.
Illinois. N. W. C. Mrs. L. Harrison.

I don't know. I don't know any reason why not, if the air is good in the cellar. Indeed, if the air is as good—but that "if"—I see no reason why they should not be a little hardier in the cellar, for endurance of too much cold enfeebles. Still, I have an uncomfortable suspicion that, for some reason, outdoors may be hardier.
Illinois. N. C. C. Miller.

I understand from the question, "Are bees as hardy to withstand spring changes?" I think, after wintering in a cellar with a temperature of 50°, and placing them upon the summer stand before settled weather, the bees will not withstand changes so successfully as those wintered outdoors. The secret is, to hold them in until there is but little danger from those changes. Chaff hives might enable them to get along successfully, but I have but little faith in that plan.
New York. E. Rambler.

[Well, for once we have got a question where there is *not* unanimity. It starts out, "I think so," and then, "I think not," and so on. Then it becomes apparent that locality has something to do with it. Our good friend Muth, away down in Cincinnati, prefers his bees outdoors. Doolittle thinks that, where he is, one is as good as the other. Prof. Cook agrees. Friend France, with his great big tenement hives, as I should suspect, prefers outdoor wintering. So you see it depends on the size and kind of hive. And then friend Manum suggests that, when taken out of the cellar, they should have outside protection. And, by the way, some good friend declares that the best way in the world to winter bees is to put them in chaff hives, and then carry the chaff hives into the cellar. When you carry them out in the spring they will have the chaff-hive protection. Mrs. Harrison says it depends on how late you leave them in the cellar. Taking a thin-walled hive right out of the cellar, and leaving it exposed to heavy frosts or severe freezing, is not just the thing. Dr. Miller has an uncomfortable suspicion. If he were in our locality, I think this "suspicion" would be still more uncomfortable. Rambler winds up as if he had heard what all those have said that go before him. Friend R., it must be on account of so much "rambling" that you have gathered up so much wisdom. You know about the rolling stone. Well, if you did *not* get the "moss," probably the *wisdom* is worth about as much.]

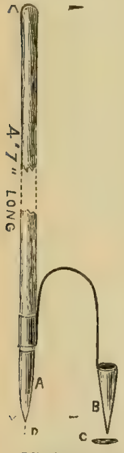
SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

Our friends will notice that the gardening department is very much larger for this issue. Well, it came about in this way: Some of our older readers will remember that I have always been in the habit of becoming especially talkative in the month of February. Another thing, quite a lot of queries for this department have been accumulating under a special weight of mine; and to give us room, the printers have kindly put in eight extra pages for this issue. If there is any thing in any of my talks that you do not care to read about, you can just skip past it and take the regular GLEANINGS matter.

THE NEW METHOD OF RAISING ONIONS.

The principal expense of this new method of raising onions is the labor of transplanting. I quote the following from the new book on onion culture:

> To plant one acre, we have to set 130,000 plants, as already stated. I can get boys, that, with some practice, will set from 2000 to 3000 plants a day, and nimble-fingered persons, used to garden work, will easily set 4000. The job of planting an acre is therefore equivalent to probably not less than 30 or 40 days' work, and in some cases this estimate may be considerably exceeded, but the amount of $50.00 should be more than enough to pay for the whole job.



DIBBLE WITH SPACER.

Now, when I read the above it occurred to me that it did not cost us much more than *half* the above amount, and perhaps our appliances have something to do with it. For some years we have used a tool for making the holes, which is really a long-handled dibble. Whenever a high-tempered hoe snaps off from the handle, we take the handle and shank and grind the latter down to a sharp point. This makes a dibble like the one shown in the cut. Well, although a *man* would space the holes very well by his eye, our small *boys* could not well be intrusted with this work, even if they wanted to do it ever so bad. They would get some of the holes two inches apart, and some six inches; therefore I devised the spacer shown in the cut.

A is the dibble, made of a hoe-handle. The point, being steel, is kept free from rust, and will readily free itself from dirt, providing the operator rolls it in his hand before he undertakes to withdraw it from the earth. This will be very quickly learned after a few trials. D is a hollow point made of galvanized iron. It is attached to a loose ferule encircling A by a stout bent wire. By bending this wire you can make the holes as far apart or as near together as you choose. The point B goes a little below the point A. Let C represent a hole in the ground, which is made with A. Now our boy sets B in this hole. This lets A drop down through the ferule; and by giving it a slight roll as it comes out, it leaves a hole like C, and lifts out B. Then he can go on almost as fast as he can walk, and have the holes as accurate as if made by machinery. Every little while somebody suggests a wheel with cones on the tire, so as to prick holes as the wheel rolls over. I have such a wheel that cost me several dollars. Of course, it will make marks in good soil plain enough to show you where the holes come; but it does not make a good hole to take a plant. Another objection is, that it makes so much travel over the ground. When our ground is in nice condition, we do not want it stamped down by boys and men running over it a great number of times. The implement shown in the cut suits me best. Three boys will plant onions with a rapidity that will surprise you, and do it so well that every onion will grow, even if some of the boys *are* quite small. One goes along and pricks the holes. Another carries the basket and drops the onions, taken from the greenhouse, one in each hole. The last one straddles the row, going along on his knees, and firms the dirt about each onion. As soon as they get through, I would run the wheel-hoe or rake through the rows to mellow up the ground where they have stamped it with their feet and knees. After that, the wheel-hoe will do all the work, or nearly all, until your crop is ready to gather. The onions are so much ahead of the weeds that the weeds seem to be discouraged, and evidently think it is not worth while to try to overtake them.

FIXING THE BOUNDARIES OF YOUR PREMISES.

In these modern days of no fences, it becomes desirable, many times, to know just where the line runs between your neighbor and yourself. Without fences, you know we can have growing crops clear up to the line or on the line; and as we expect to work our land by horse power, of course, not only is any sort of fence an obstruction in the way of cultivating, but even a stake gets in the way, or is knocked down, etc., unless, indeed, we put in a great heavy post. But this is expensive, and is in the way, besides. Now, I will tell you what our men are putting down for corners and boundary landmarks around my high-priced lot across the way. We had some rustless iron gas-pipe, an inch in diameter, that had burst by freezing. I know we were very foolish to let it freeze and burst; but as soon as it happened I began to wonder whether it could be utilized in some way so as to be worth almost as much as it was before. Well, we cut it up into lengths of 2 and 3 feet. Then we united the 2-foot pieces to a 3-foot piece by means of an ordinary coupling. On all of our corners a 3-foot piece was driven into the ground just level with the surface. Then a 2-foot piece was screwed into it by hand. Now, in plowing or cultivating, the 2-foot piece can be screwed out until the horses are out of the way. Then take a spade and find the lower part, then screw in the 2-foot piece again. On our east boundary, along by the railway, we have put one of these iron posts every 50 feet. A 2-foot piece of poultry-netting can be run on these pieces, if need be, and this will make a sufficient barricade to protect the crops to some extent; and yet when it comes in the way of cultivating, just slip the poultry-netting off the posts, and lay it back out of the way. How many times does a surveyor have to be summoned, and expensive surveys made, to find the corner of a lot! A piece of rustless or galvanized iron tubing driven into the ground three feet will make a landmark that will stand for hundreds of years; and with this 2-foot piece screwed into the tube it can be easily found at any time. If somebody should drive over it and break it off, it would probably result only in splitting the coupling, and a new coupling could be purchased for three or four cents. In view of the many troubles and quarrels that have resulted in regard to boundary lines, will it not pay you, my friend, to put down such a landmark on every corner of your premises? Even after the surveys are made, as surveyers do not all do their work just alike, a corner is apt to be located at a different spot (unless very plainly marked) from where it was originally. This leaves the way open for still another survey at some future time, and, may be, a quarrel.

THE EARLY PIE PUMPKINS.

Friend Root:—I don't think you half appreciate the good points of the early pumpkins. You speak of their being early, but they will keep late too. We kept some until Feb. 1 this winter. The best thing about them is their fine grain, some of them equaling the Hubbard squash in sweetness and texture. They will cook as quick too. Our folks cooked some once, and made pies and got them in the oven before breakfast. Compared with the old kind that have to be cooked half a day to get the water out, this is a great advantage. Although small there are nearly as many pies in each one, because you don't have to cook away so much water, and there are more on each vine. I got over 100 from about a quarter of a five-cent package of seed bought of you. They make the most delicious pies that I ever tasted; but there is just one trouble about them, *they won't keep!* I wish some one would tell how to can them. We have tried many times, but so far have always failed. It can be done, I know, for the canning factories do it. CHALON FOWLS.

Oberlin, O., Feb. 21.

FLORIDA GARDENING.

Our gardens nearly all have cabbages here. We have plenty of new cabbages now, and will begin to ship some about the first of February, if the market is favorable then. We can keep our cabbages several weeks after they head up by taking a plow and tumbling them out just so as to stop the growth; and it will harden the heads, making them heavier; or if they are uneven in heading, we go along the row with a long-handled spade and turn partly out of root the overheaded by putting the spade down near the stalk, and prying it over. In doing this, always turn to the north, so the sun will not burn the heads. Radish, turnip, and onions, are on our bill of fare. Peas, beans, and potatoes, will be along soon. I could tell you several other things that might not be new to you, but still are worth thinking over, when we have time to reason with nature and her laws and products.

THE IMPORTANCE OF GETTING GOOD CABBAGE SEED.

I read in GLEANINGS about Mr. Passage having trouble with his pumpkins. Well, we are having far greater trouble with our cabbages. In the Early Summer (Henderson's), in my field of three acres, beginning to head, I can show all kinds named, all from the same package of seeds. The greater *part* are true Early Summer, but there are many like the Wakefield and York varieties, and some like the tall Drumheads. My seed came from James J. H. Gregory. I have some of his *All Seasons.* They show very little of the sport; but my neighbor's fields near me (who used the Early Summer, from Peter Henderson & Co.), show a great many varieties, or types, of them, or sports. This "*sporting*" is *very costly* to us, for many of the sports will not head up to be of any use, for some of them will be several weeks later; and, besides, there are only a very few kinds of cabbage that will head up solid here. I call this sporting "hybrids," or crosses of various kinds. Could not our seed-growers grow their seed isolated, so there would be no hybrids? J. CRAYCRAFT.

Astor Park, Fla., Jan. 27.

[Friend C., we have much the same trouble (with the best cabbage seed we can get) here in our locality. I think, however, that raised by our good bee-friend H. A. March has less of this sporting. Have you ever tried his Jersey Wakefield and Fottler's Brunswick? A couple of years ago we had some choice seed sent us from Holland, that I believe gave a greater number of uniform heads of late cabbage than any thing else we have ever grown. With the wet seasons we have had, however, for two or three years back, I believe we have had *more* trouble from heads bursting than from sporting. Of course, we cut off the roots with the spade, and "unscrewed" them in the ground, so as to snap off most of the roots. In some cases we treated them so severely they began to wilt; but with plenty of rain they started out new roots, and in a week or two began to burst again. If there is a strain of cabbage in the world that will neither burst nor throw out sports, such as you describe, I presume we could pay a *dollar an ounce* for it, and make money then.]

RAISING STRAWBERRY-PLANTS FROM CUTTINGS.

The strawberry may be increased very rapidly by buds or cuttings, and this is the way I do it: Frames, nearly four feet wide, and any length desired, are made of common fence-boards six inches wide. The soil within them is made fine and level. Of course, it is rich. The surface is then covered about half an inch deep with sand, and moderately watered. Screens are needed, and I provide them by making lath frames, three feet by four, and covering them with new cotton cloth, fastened on with carpet-tacks. We are now ready for the cuttings. The best time to take them from the beds is when the dew is on; but if it can not be done then, it may be done at any time in the day by putting them into a pail of water as they are cut. They are at the right stage when the roots are just starting. If too young, failure will result; if too old, the roots are in the way. Sometimes a runner is prevented from rooting until it has several leaves, and in such a case all but one must be removed. In trimming, the runner is cut off within two inches of the bud, or embryo plant, and the cutting is thrown into water. This work must be done in the shade. It is not best to trim too many at a time. If they remain in water over night they are apt to fail to grow. When ready to put them in the frame, place a lath, or other straight-edge, across the bed, on the surface, and run a thick knife along the side of it, making a straight cut, perhaps three inches deep. The cuttings are thrust into this cut until the points from which the roots start are half an inch below the surface of the sand. The cuts should be four inches apart. The soil should be damp, but not wet enough to be puddled. If the work is done when the sun is shining, it is well to water the cuttings as fast as the rows are finished, and cover at once with screens. They must not wilt. They should be set two or three inches apart, according to the purpose for which they are being rooted. If they are to remain in the frame until sold, a month later, they need more room; if they are to be taken out and potted in a week, less will answer.

The frames need careful watching for a few days. The shades are to be removed in the afternoon as soon as the sun ceases to shine on the beds, and replaced in the morning before the dew is all dried off. It is usually well to give a moderate watering when the screens are taken off, and again before they are put on. If very hot and dry, it is a good plan to spray or sprinkle the screens two or three times during the middle of the day. If damp and cloudy, they may be left off all day. As the roots grow deeper the tops can bear more sunshine, and in a few days they will need shading only in the middle of the day. Plants rooted in this manner usually have longer roots, but fewer of them, than those grown in the natural way, and they bear transplanting much better, having been thrown upon their own resources when very young.

Some one may wish to ask what is to be done with the cuttings that have roots when they are taken from the original bed. Treat them as cuttings, if the roots are less than an inch long, although, as before stated, they are not as good as those taken off at the right stage. If the roots are an inch long or more, treat them as plants, heeling them in by themselves in the frame, and shading and watering judiciously until they are able to take care of themselves.

The method herein described has some advantages when used with care and judgment. It enables those who sell plants in summer to save the young plants and runners which would otherwise go to waste. It enables market gardeners to have a large number of good, uniform plants that can be taken up rapidly and set where some early crop has been harvested, thus making the strawberry a catch crop. It enables horticulturists at experiment stations and elsewhere to have a large number of varieties ready for planting at the same time, and all of the same age. Sometimes we want to plow a bed as soon as the fruit is gathered, and by this method we can save the plants.

Cuyahoga Falls, O., Feb. 4. M. CRAWFORD.

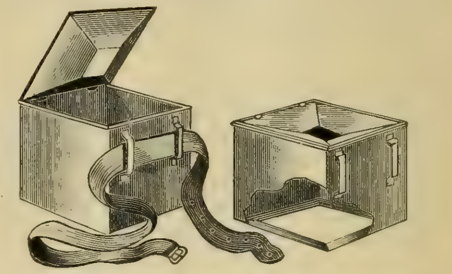
FORCING RHUBARB IN WINTER.

We are just now getting 15 cts. a pound for rhubarb for pies. I presume the scarcity of fruit explains why people are so willing to pay so much more than usual. By the way, we have learned a trick in forcing rhubarb. If there is any place in your greenhouse that is *too hot* for any thing else, it will be just right for your rhubarb-plants. Set the roots in very rich soil, and then cover them up with manure, either new or old—it does not seem to make much difference. Keep them constantly wet, and they will make the most astonishing growth of any kind of vegetation that has ever come under my observation. Another thing, it does not make any difference how dark it is. They will grow just as well in the dark as in the light, and you can plant them right up close to the boiler, furnace, or flues. The principal item is to get great strong roots grown in the open air, for forcing purposes. We have been buying them for about $2.50 per 100 roots. The roots are of such size that 100 just fill a barrel. If somebody has some large roots for sale, I think they would find it profitable to advertise them. It will be quite a little time before strawberries come, and there is going to be a great call for "pie timber" meanwhile. Whenever the ground thaws so you can dig the roots out, just put some in your hot-beds, or, later, in simple cold-frames. Give them manure enough, and see what great stalks you get. If the demand is going to increase for these roots, it may be well to think about sowing seeds pretty soon, so as to have the roots in readiness for another winter.

AIDS TO BERRY-PICKERS.

Although it is quite a little time before berry-picking comes again, it may be well to consider, during these winter months, appliances that may help us to rush things when the season comes round. The one illustrated below was engraved from a machine which I saw at friend France's, in Platteville, Wis. It is especially designed for blackberries, but it may be used for raspberries, currants, and other like fruits. The cut below almost explains itself.

The apparatus is made of tin, just large enough for a berry-box to sit inside. It is held around the waist by means of a belt. A hopper-shaped cover deposits all the berries in the center of the basket; and when they come up so as to strike the mouth of the hopper, the picker has notice that his berry-box is exactly full, with the top nicely rounded up. In our berry-picking, where they pick by the quart, there is always more or less discussion as to how full the boxes should be. Some of the little girls would heap them up so there was a fourth more than good measure; and I am sorry to say that some of the boys brought them in scarcely level full. The consequence was, the boss had to take some from the boxes picked by the little girls and fill out those brought in by the selfish and greedy boys. Boys, aren't you ashamed of yourselves to be outdone in honesty and liberality and fairness by the little girls? Well, this machine fixes the whole matter as to how full the box should be. But, most important of all, it enables the picker to use *both* hands; and with *blackberry*-bushes this is most important. Friend France says, as soon as he fitted out his berry-pickers with these machines they picked berries so much faster, that, when they came in at noon, they volunteered to drop a cent a quart on the price he had been paying them, if they could all have the picking-machines. Now, I tell you this is a pretty big testimony in favor of any implement to lessen hand labor. The bottom to the tin box is just large enough to hold the box securely. As I find the same device figured and described in our gardening periodicals, I presume such arrangements are not exactly new. The one given above, however, seems to be the most practical.



MACHINE FOR PICKING BLACKBERRIES.

A TREATISE ON TOMATO CULTURE.

The above is the title of a little pamphlet just out, by J. W. Day, of Crystal Springs, Miss. There are three things that make this little work of special interest to me. First, it is the only book I ever saw or heard of, devoted entirely to tomato-growing; and you know I am greatly interested in any thing in regard to special rural industries. Second, it comes from the South. Our Southern friends have, as a rule, been a little behind in books on horticulture, gardening, etc. Third, the book was written by a live, practical man. Let me make a little extract from a private letter:

> I have raised hundreds of acres of tomatoes, and I shall put out 100 acres this season. I am a subscriber of GLEANINGS, and like to hear you speak of your berry-raising, gardening, etc. We grow large fields of strawberries, and have a little over 400 acres in peach-trees in this place alone, besides some at other places. I am a partner of Parker Earle at this place.

Our readers will remember Parker Earle as the introducer of one of our most promising strawberries from which it takes its name. Even in Mississippi it seems they need hot-beds to start the tomatoes. The little book gives directions for making two kinds—one with a furnace with a long flue through the center of the bed, and the other made of stable manure.

These directions are exceedingly practical. At the outset one almost begins to wonder what varieties would be recommended by a grower who raises tomatoes by the hundreds of acres, and I think we will copy what the author has to say in the matter:

VARIETIES.	Size.	Color.	Flavor.	Smoothness.	Earliness.	Prolificness.	Hardiness.	Total.
Acme	10	10	10	10	10	7	7	62
Essex Hybrid	10	10	8	10	7	10	7	62
Livingston's Beauty	8	10	10	10	10	5	5	58
Turner's Hybrid	10	10	7	7	7	8	8	57
Buist's Beauty	10	5	5	8	8	10	8	54
Buist's Prize Bell	10	5	5	8	7	10	8	53
Livingston's Favorite	8	5	5	8	8	10	8	52

It seems from the above, that friend Day places the Acme ahead of all others, all things considered. I wish he would tell us whether he has ever tested the Ignotum—probably not.

The directions for sowing the seed are exceedingly interesting, and I was specially pleased to see that the author recommends using largely what he calls bat guano. When I visited Mammoth Cave I was greatly exercised because the great heaps of excrement, from the bats that clung to the walls, lay there on the ground unused, perhaps the accumulations not only of centuries, but may be *thousands of years*. Who knows to the contrary? I questioned the guide until he became weary of the subject, I thought, and I have since been told that this bat guano has been found in immense quantities in many caves in the South. Why should we go to the remote islands of the sea when these deposits lie safely housed from the rain in the caves throughout our land? I wonder if the readers of Gleanings can tell me more about bat guano. Then friend Day tells us about cold-frames for the plants, made of a covering of cloth, to be rolled up on a long roller. He says that one man, by going to the middle of the bed, can roll a curtain 200 feet long. Well, I have used these beds covered with cotton cloth rolled up on a roller; but, my good friend Day, what do you do when there comes a tremendous wind, and just flops your cotton, roller and all, all to bits? It is true you might roll it up, but then what happens to your plants? Then suppose the hard wind is accompanied with snow and rain. In your locality it will very likely answer very much better. In transplanting and moving plants to the field, there are a hundred little hints that none but a practical, hard-working man would ever get hold of. I have had just about experience enough to appreciate most thoroughly the short cuts that save labor and backache, given in this book. His directions in regard to transplanting to the field give us such a vivid picture of real life in market-gardening that I want to give it right here:

TRANSPLANTING TO THE FIELD.

> If you have a large crop and not much force, begin a week ahead, and have every thing possible ready and at hand—water at hand in barrels, hoes and spades and trowels and hand-bearers; and every thing that is to be used in getting the field ready must be ready, as a day at this time counts five days at any other time. Experience will teach you this. A little illustration will suffice here: On the 3d of April, 1884, I prepared land until nearly night, and it began to look like rain. We set a few hundred that evening. It rained that night, and continued ten days, and the plants in frames grew two feet high, and fell flat, and were almost worthless; while the few hundred I set that evening surely bore the finest crop I ever saw.
>
> The inexperienced will ask, "Why didn't you set all day and the day before?" Frost! frost! is why; but as the 5th day of April is the limit of the frost season here, we begin to plant just as soon in April as the first frost passes, which is between the 1st and 5th. I am aware I am digressing a little; but to the inexperienced, for whom this pamphlet is written, it will all come in good.

There is a chapter on trellising, or staking, and this seems to us a very important item. The author says, if we want extra early tomatoes we must prune and stake them. If we want a great lot of tomatoes, and don't care about having them particularly early, give them more room and let them sprawl over the ground. By pruning and staking them he gets them as close as 18 inches; but where they are allowed to grow according to nature, put them twice as far apart each way.

Now, I have said so many encouraging things about the book, perhaps I should speak of some of the discouraging features, even if I do hate to do it. The price of the book is 25 cents for only 25 pages of matter, and many of the pages are not half filled at that. In view of the great value to be found in the book, we might overlook this if the grammar, punctuation, and spelling, were not so exceedingly faulty. But there is still another greater lack. The book is not illustrated at all, when it should have at least one nice picture on every page. I have advised the author to sell this edition at a low price, and get out a finer one, for there is certainly abundant need of a nice little book on growing tomatoes. I am so sure he will agree with me that I shall take the liberty of offering the readers of Gleanings the little book for 20 cents, postpaid.

PETER HENDERSON.

From a memoir entitled, "Peter Henderson, Gardener, Author, and Merchant," written by his son, Alfred Henderson, I extract the following from the remarks of a great and good man, and one who has certainly been a benefactor, not only to our nation, but to the world, in the line of gardening and horticulture. The first extract is taken from a magazine printed in 1866, when they were discussing horticultural patents:

> I consider that man particularly unfortunate who asks a patent for what he thinks to be a discovery in horticulture, for there is a free masonry about the craft which begets a generous exchange of information; and he that holds a "secret" to himself, or intrenches his "discovery" behind a patent-right, is not usually benefited thereby.

Right in keeping with the above comes the following:

> His thirst for knowledge was so strong, that, in his first apprentice days, his companions in the "Bothy" used to laugh at him for reading the dictionary at his meals. He kept at it for six months until he finished it, and then pronounced it a most interesting book, "no matter what others might say." The practical outcome of it was, that his "Bothy" companions found that, when he was through, he could spell and define any word which they might put to him. But, with all his studiousness and industry, he was not a recluse by any means, for there is ample testimony to show that, in all the frolics of the country side, he was always the leading spirit.

And again on page 37:

> Mr. Henderson was not only an abstainer from liquor, but tobacco in any form he never touched. He was very regular in his habits, and simple in his tastes. Up to the close of his life he made it a rule to spend from three to four hours every day in the open air.

Now, boys, I tell you there is a big sermon in just the above extracts I have given you. As the twig is bent, the tree is inclined. The memoir I have alluded to is a little book of 48 pages, containing a steel-plate engraving of Peter himself. I do not suppose the book is for sale, but very likely the friends of our departed leader in the gardening business can have one on application.

MYSELF AND MY NEIGHBORS.

Resist the Devil, and he will flee from you.—JAMES 4:7.

If the great Father above has given me any particular message to deliver to the children of men, it is along the line of our text. I see people all around me struggling against evil—not the same sort of evil, by any means, for the thing that tempts one has no attraction at all for another; and Satan's ways of working are so diverse and so many, that sometimes I think it is only once in a while that we find two people who are tempted precisely alike. A few days ago Huber came home from school, with a remark something like this:

"I tell you, pa, Miss Smith is having almost as much trouble with the boys in the new schoolhouse as you are with tobacco among the factory hands."

"Why, you don't mean, Huber, that the boys that go to the new schoolhouse—the little ones —are using *tobacco?*"

"No, they don't use tobacco; but the trouble she has is because she can not get them to stop using bad and naughty words."

You may be sure that my heart went out in sympathy for my excellent, hard-working friend who is principal of the four juvenile classes in our new schoolhouse. After prayer-meeting was over one evening, I mentioned to Miss S. the report Huber had given.

"Well, Mr. Root, I am very much obliged to Huber for his sympathy, if for nothing more. We four teachers have been having a real time with this matter of profanity and obscenity; and it has obtained so persistent a hold among some of even the very small boys, that we are almost at our wits' end. I do wish you would come down and see if *your* influence in addition to ours may not amount to something."

Not very long after this, a little note informed me that they would be very glad to see me at three o'clock that afternoon. I went, and was ushered into one of the rooms, for school was just closed, and pretty soon eight small boys came in slowly, with downcast eyes and sad countenances, evidently expecting punishment or a severe reprimand which they evidently felt they deserved. Miss S. remarked that these were the ones who seemed to do no better, even after they had been repeatedly admonished. For a little time all was silence. I motioned them to take seats, and I sat down as near as I could well get to them. As I looked into their faces I inwardly prayed for wisdom to get a real strong hold on those little hearts—yes, even though Satan had already made sad inroads therein. I remembered my hobby about getting acquainted, and in fifteen or twenty minutes I felt happy to see them not only listening to all I had to say; but before I got through, they asked *me* questions, a great many of them. My prayer had been answered. They looked up with fear when I first came in, but we were now all on very friendly terms. They had given me a promise to try harder to resist evil: and when I told them that God heard that promise, and asked them to kneel down while I prayed that he would help them to keep it, every boy knelt down by me; and during my brief prayer you could have heard a pin drop. Their ages ran from seven to twelve. The youngest said, in our confidential talks about the matter, "Mr. Root, I can keep the bad words back without much trouble unless something gets me real mad, and then I can't help it. They will come." May God bless and help this poor child of seven! I told him that great big men had exactly the same experience he had, and that some of them, with all their strength of mind and muscle, did not succeed much better than he did. They told me, too, about big men who set a bad example, and, without knowing it, perhaps taught them these bad words. I promised them that I would talk to the big men too, and I have commenced it. I exhorted them, in the language of our text, to keep these words back, and hold them in with all their might. I explained to them, that, although it is bad and wicked, even to think "swear words," it was a hundred times better to keep them back and not let them out; and I told them that, if they kept them back resolutely, by trying real hard, by and by the bad thoughts would step out, and I unconsciously preached a sermon for myself at the same time. Resist the Devil, and he will flee from you, my good friend. I asked the boys about their mothers; and, oh how I do wish I could see these mothers, and have just such a little talk with them! I would admonish them to whisper a kind helpful word in the ear of these precious boys of theirs, just as they start for school; and then I would exhort the mothers to be on the watch when school is out; catch the anxious, restless chap in your arms for just a minute, and ask him if he has kept the promise that he gave you in the morning, to refrain from bad words. Oh! if you will do this, dear sister, the schoolteacher will not feel her labors are like casting pearls before swine. I know of a mother who fought Satan long and faithfully, right along on this line; and, with God's help, she triumphed. Her boy is now superintendent of a Sunday-school, and doing what he can for a great lot of just such urchins as he was a few years ago. After the boys had gone I asked to see all the teachers. I sat down with them and exhorted them to be not weary in well doing. In speaking of the parents, Miss S. told me that she sent a note home by one of these same boys —the oldest one in the lot, in fact—a note to his mother. Shall I tell you what the mother did? She gave the boy a tremendous whipping—a whipping so severe that my good friend told me she felt almost afraid to report to the mother again. Perhaps the poor mother thought she was doing her duty. May be she had tried other means; but, O dear mothers, please believe me when I tell you that with these other ways I have told you of, where followed up faithfully, week in and week out, I am sure the whipping could, at least in most cases, be omitted entirely. Very likely punishment is necessary, but I begin to fear that it is given only when the parent is off from the track, as well as the child. When weeds become so large that they can not be killed with a rake, we must take the hoe and chop them up; and sometimes, after very long neglect and procrastination, the only thing is to take the scythe and mow them off. Do you see the application, dear father or mother? and do you know by experience how much better and happier a parent feels who has conquered by love instead of the rod? Why, we got so well acquainted in just that little visit with the boys that one of them said, as I told him he might go home, "Why, Mr. Root, I go to your church. Didn't you know it?"

I told him I had seen him at our church, and I was very glad he did go; and I told them, in leaving, that I should watch for them when I passed them on the streets; and I hoped to catch a pleasant look from each and every one of them, assuring me they had kept the little promise given that day to me, before the great God above.

A few months ago a young man applied for employment, and remarked that he had worked at the machinist's trade some. As we were in need of a machinist I talked with him more than I usually do, and his manner and appearance pleased me so well that I set him at work. He did not use tobacco nor bad language, and was not intemperate. His brief history illustrates the point I have mentioned in my opening remarks (that our temptations are unlike). He seemed to be a steady, faithful man; but before he had been with us many weeks I heard he was borrowing money of the hands, and getting into debt for things around town. Then somebody said he was going to get married, and bring his wife to our place. Well, about a week ago he *did* get married, and he married a girl (or child rather) only *fourteen* years old. In order to get a license he took oath that she was of age, and he is now in our county jail for perjury. Almost as soon as he came among us, some of our hands found out he was not a Christian; but he seemed so good natured, however, and willing to join in every thing good, that, before the event mentioned above, he had united with one of our Medina churches. When I visited him in jail he was bowed down with grief and shame. He put his head on my shoulder, and wept so he could hardly speak. I told him he could give better proof of his penitence, if it were *really* genuine, by dropping the past and turning in *real earnest* to Christ Jesus for help. I assured him that the Bible promise, "Come unto me, all ye that labor and are heavy laden, and I will give you rest," was true in every minute particular, and that it was open to every human being, under all circumstances, and *especially* to the sinner. But I told him there was no help from Christ Jesus, nor from his friends here in Medina, unless he told the *honest square truth* from beginning to end. He promised most earnestly to do so. He had been engaged to the young woman for only three or four months, and I asked him why he could not wait until she was of proper age. He replied that he thought so much of her that he could not bear to be away from her, and that most of the money he had borrowed was to hire livery rigs to go and see her. And yet at this time he had been paying at least *some* attention to two or more young women here in Medina. He said he did not think of there being any thing particularly wrong about it. Now, boys, I want to say a word to you right on this point. The man or boy who is engaged to some girl or woman should behave himself toward all other women exactly as if he were married. Of all the solemn engagements in this world, none should be held more solemn and sacred than the promise between two to become man and wife. God sees as the world does not see; and he who resists not evil in this line will surely repent it. "Whatsoever a man soweth, that shall he also reap." The relation between man and wife is sacred and holy, and the vengeance of a just God will come down on the head of him who trifles with this relation. Let me whisper to my young friends of both sexes, to be careful and cautious about making these engagements, as perhaps nothing else in this world can so seriously affect one's whole life. But after having once made it, let it be a sacred and solemn compact made before God. It is a serious thing for anybody to trifle with such an engagement; but ten times more so to the one who professes to be a Christian.

I next spoke to our young friend about his habit of borrowing money from people on short acquaintance. Let me put in a warning also, in regard to foolish extravagance and its attendant, getting into debt, or borrowing money. Of course, there are circumstances where it is right and proper to borrow; but for one who is supporting himself by daily wages, and who is liable to have his income suddenly cut off by sickness or other vicissitude, to borrow money for the purchase of things he could get along without, is not only folly, but it is sinful; and it is also wrong to lend money to such a one. There are more or less of these shortsighted, foolish individuals in every community, and when pay-day or Saturday night comes, these individuals are always wanting to borrow from their comrades. Believe me when I tell you it is a Christian duty and a kindness to such to speak right out squarely, "No, sir. I have no right to lend you this money, and you have no right to borrow it." Such a reproof is the kindest service you can do them. I know it is not always taken as a kindness; but I can look back now, and thank from the bottom of my heart the friends of my boyhood who were friendly *enough* to refuse me, and to point out to me the folly of my request. Now, do not think unkindly of the one who refuses to lend you money or to trust you for goods. Very likely he is not only the wisest but the very best friend you have.

I told this young friend I felt sure that this was a bad habit that had grown upon him little by little. I do not like to compare sins; but giving way to such a temptation is perhaps fully as damaging on community as either swearing, tobacco, or whisky. He declared to me that he had never been guilty of this sin before he came to our town—that he was square with the world, and owed no man except in Medina; in short, that he had resisted the Devil until he came among us. I could not believe it all. Sins like these are invariably of slow growth. The seed must first be planted, and the weeds allowed to grow for at least a time before it results in open crime. He declared to me most positively, when I asked him the question point blank, that he had never been married in his life, and had never been engaged, even, to any woman before his engagement and make-believe marriage with this child. I say "make-believe;" for he was arrested within a short time after the ceremony was performed, and the girl was sent home to her parents, with the information that she was not a married woman at all—that the marriage was null and void. I was greatly astonished to hear, when he came to be examined, that he has a wife living in an adjoining State. Now, notwithstanding my earnest talk—notwithstanding his earnest protestations that he was trusting in Christ Jesus, he had not he courage to confess to me the whole truth.

Although this young friend did not tell me so, I am afraid he has not been resisting the Devil; and the evil one did not come to him through tobacco nor strong drink, nor, perhaps, an uncontrollable temper. But for all that, the result was just the same. O friends, I wish I could impress upon you the importance of resisting Satan's whisperings at the very *outset;* and believe me, I beg of you, when I tell you that he *will* flee from you if you only *hold on.* Don't give up; don't become tired; don't say, "I can't stand it any longer." These trials are the turning-point between life and death. They settle the question between light and darkness—between sorrow and joy, and grief and gladness. These struggles with sin are for *your own good.* They will work out *glorious* things for you if you only overcome. You can not be great and good, and wise to help others, unless you resist and hold on. Stand steady and be brave, until the evil one lets go his hold and gives up and says, "That chap is bound to be good. He is so firmly planted on the rock Christ Jesus that we might as well give him up." And then, oh what joy comes to the poor persecuted sinner when Satan flees away!

EDITORIAL.

Blessed are the pure in heart, for they shall see God.—MATT. 5:8.

We are obliged to add eight extra pages this issue.

ESSAYS AT CONVENTIONS.

Short, pithy, well-written essays, suggestive of several good points, are always in place at conventions: long-winded ones, never. A long essay, however, may be valuable in proportion to its length. But it taxes the nerves a good deal more to listen to something read than something given off-hand, in animated conversational style.

THE PRESIDENT OF THE N. A. B. K. A.

Mr. Elwood is not only a successful bee-keeper, a refined and educated Christian gentleman, but he makes an excellent presiding officer for a bee-convention. He has a happy faculty of summarizing the *best* points brought out by the discussion; and when the discussion becomes a little lopsided he is pretty apt to call out the other side, although that side be against his experience and sympathies. He will make a good presiding officer for the N. A. B. K. A. next fall at Albany.

CLOSED-END FRAMES IN A TIGHT-FITTING CASE.

On page 161 it is suggested that friend Heddon includes this idea in his patent. I trust this is a mistake. Closed-end frames in a tight-fitting case were exhibited on the Ohio State Fairgrounds more than twenty years ago. Another man had a patent on a similar arrangement on the Centennial grounds in Philadelphia, in 1876, and somebody has been inventing it and bringing it out every little while ever since Langstroth brought out movable frames.

A. I. R.

THE GRIPPE AGAIN, AMONG THE BEE-KEEPERS.

It has had a little run here at the Home of the Honey-bees, but for the present it seems to have released its hold. We are just in receipt of a letter from Dr. C. C. Miller, and he says: "I am pretty badly used up with the grippe. Mrs. M. has been still worse, and mother Wilson is getting over the pneumonia. Em is laid up with a sprained ankle." Well, well, doctor, you *have* been having misfortune in your household. We extend to you our sympathies, and are glad to know that you are improving.

DADANT'S LANGSTROTH IN FRENCH.

We notice, by the last *Revue Internationale*, that this great work of our esteemed and celebrated co-laborer is at last ready for the French-speaking people of the world. It will be ready for sale on the first of March, just as this reaches our readers. We are informed that this will not be simply a word-for-word translation, but an adaptation of the book as a whole to the people of France, Mr. Dadant's native country. We predict that it will create a great stir if not a revolution in at least some districts of France. We have not learned the price of the book here in America. The price is 7½ francs in Nyon, Switzerland, at the office named above.

MR. THOMAS PIERCE AND FIXED FRAMES.

It was our special pleasure to make the acquaintance at Albany of Mr. Thomas Pierce, an enthusiastic bee-keeper of Gansevort, N. Y. He is a slim six-footer, and quite fills the bill as given us by Rambler on page 437, 1888. Said he, "So you are interested in fixed frames?" We meekly admitted that we were. "Well, you will find that not all of our York State bee-keepers use them. I don't, and some others don't." We were about to ask the reason, when somebody desired a hand-shaking, and the matter dropped where it was.

A CORRECTION.

Friend Segelkin, whose article on grading honey appears on page 134, calls attention to the fact that the words "*Not white honey*," under the head of "Grading Honey," should be "*No. 1* white honey." He says, "No doubt it was the writer's fault;" and as it passed the eyes of all here as it appears in print, perhaps the fault was not wholly ours. A second inspection of the manuscript shows that the word "not" was plainly written, but the *t* was not crossed. The omission of the period after "No." is what caused the whole trouble.

PRECONCEIVED NOTIONS.

What a lot of trouble this commodity in human nature makes us sometimes! We figure out in advance whether a thing will or will not work. Our experience with bees has been such that we are morally certain that we are not deceived, and we try hard to make all our experiments come out so as to favor our views. With enough bias of opinion we can make out a pretty straight story for or against the idea; but when such are reported it costs the fraternity much. Let us be unbiased, and ready to have our old notions broken down when facts and subsequent experience warrant it.

HOW TO KEEP BEES AWAY FROM WATERING-TROUGHS.

Among some of the good things we learned at Keokuk last fall was a little hint worth remembering, from A. N. Draper. He is an extensive honey-producer—a man who owns several out-apiaries. Said he, "People have had a good deal to say about keeping bees away from watering-troughs. I will give you a secret that is worth them all. Take a weak solution of carbolic acid, and paint it around the edges of the trough, and then they won't bother your neighbors. If you get them out of the habit of visiting such places, they will stay away." We have used enough carbolic acid in the apiary to feel pretty tolerably certain that this will work. Put this down in your note-book, and try it next season and report.

BEE-KEEPING IN RUSSIA.

The official report of the Petrowsky Agricultural Academy of Russia has just been sent us, through the kindness of P. Kuleshoff, Professor of Agriculture in that institution. The document is devoted to apiculture, and gives a general summing-up of bee culture in this country and England, in order to show what the Muscovites themselves can do if they try. Although our early education in Russian was somewhat neglected in our school days, we have succeeded admirably in translating some of the *pictures* into plain English; and these, together with some columns of figures, which seem to add up just the same in both languages, give us a very good general idea of the nature of the book, which is admirably printed — rarely equaled by our own government documents. We see the familiar name "Root" turns up in Russian as Рута (what a pity!) but the pronunciation is the same as in English. Friend Gravenhorst appears under the *nom de plume* of Гравенгорст. Seriously, we shall be glad to hear further about the growth of apiculture in

Russia, and hope that friend Kuleshoff will write us an article on the subject, for we feel sure it would be very interesting.

W. E. CLARK'S PICKLE STORY; WHY EXTRACTED HONEY SOMETIMES DOES NOT SELL.

Among other good things given us by W. E. Clark in the convention at Albany was what we will call his "pickle story." A groceryman had had for a year or so half a barrel of pickles under the counter. A new clerk was hired; and, seeing the pickles, asked if they were sold. His employer replied that they were a drug on his hands. The clerk very modestly volunteered the information that he could dispose of the whole lot in a few days. The employer told him to go ahead. The clerk procured some nice square bottles, filled them with pickles, corked them, neatly labeled them, and, last of all, he put them in a conspicuous place, and, presto! they went off like hot cakes, at a good big price. Said Mr. Clark, in moralizing on this point, "The customers did not know that the groceryman had pickles for sale; and even if they did, they did not have some neat packages of them *constantly* in sight as a reminder of the fact that these things were for sale. That is just the trouble with extracted honey in many of our groceries," continued Mr. Clark. "It is sent to the groceries in bulk, and then they are *not* supplied with attractive packages to exhibit the article; and many times, if supplied, the packages are allowed to become fly-specked, and the honey to become candied." It should have a neat, clean, and fresh appearance. If people do not want to buy it in packages, let them have it in bulk, but let them see that honey is for sale in attractive glass packages. They make the best sign.

THE HAPPIEST MOMENT OF A BEE-KEEPER'S LIFE—A LITTLE ADVICE TO THOSE WHO DON'T READ BEE-BOOKS.

The happiest moment in a bee-keeper's life is not when he becomes the father of a newborn babe of flesh and blood (although that is a supreme moment, so it is said), but it is when he becomes the father of a baby in the shape of a *new-fangled bee-hive* that is "warranted to revolutionize bee-keeping in the near future." Very proud he is of that baby for a while, and jealous is he that no other shall try to snatch it away from him, and he gets the United States courts to protect him. But his "baby," after a while, does not come up to his expectations. Somehow, as the years go by, it doesn't take to the *bees*, and the bees don't take to *it*. The ultimate result is, that it is piled up in the back yard, along with a lot of others. Almost every beginner has been through the experience; but sooner or later he repents, buys a good bee-book, and starts right. There is lots of fun in inventing a hive that will beat any thing ever before heard of. But we urge, *don't*. Don't waste any time or money until you have thoroughly read the A B C of Bee Culture, or, in fact, any standard text-book on the subject. About every week we receive a letter from one who has got a hive, the special features of which he is not yet prepared to divulge, but which he is *sure* is something far superior to those devised by the "fathers" of bee-keeping. By and by, when it *is* divulged, a little inquiry elicits the fact that it is older than the hills, and a little better than the "old log gum;" and that the happy (?) inventor has not even read a bee-book.

LAYING OUT AN APIARY; SEASONABLE HINTS.

It is about time now that we should be thinking of locating our apiaries. Experience has shown that we can not afford to go to any great expense in providing suitable shade. There are plenty of locations that afford shade naturally for at least a part of the day. A young orchard is an excellent place. It may be well enough at our home yard to go to considerable expense in putting up grapevines or other shrubbery; but it certainly will not do for an out-yard. Experience has shown, in many instances, that a yard that has in years gone by furnished tons of honey is now practically worthless, or so nearly so that the moving of the bees to some location more favorable is a necessity. For instance, four or five years ago an apiary furnished an abundance of basswood honey; but the basswoods have all been cut off; there is no clover, and the field is worthless. Again, a locality has once furnished immense quantities of white clover; but extensive agriculture has set in, and clover pasturage has given way to immense wheat-fields. The inroads of civilization sometimes damage the honey-bearing resources of a locality; and, conversely, sometimes make them more valuable. There are a few locations in York State that formerly gave but very little honey; but the farmers, in recent years, have introduced buckwheat to such an extent that these are now splendid buckwheat countries; and the yield of this dark rich honey plays a considerable part in the net profits of the season. In a word, we want our apiaries so we can load them up at a moment's notice, and move them at practically little expense to any new field that may be more inviting. We can not always tell at first whether it will be a favorable location or not. If it does not come up to our expectations, we can "pull up stakes" and try elsewhere again. If you can locate near swamp land you are fortunate.

W. L. COGGSHALL'S EXTRACTOR; COMBS HANGING IN THE BASKETS THE SAME AS IN THE HIVE.

In between the sessions we had a very pleasant visit with W. L. Coggshall. He is one of the largest honey-producers of York State, and runs for extracted honey almost exclusively. Said he, as our conversation turned to extracted honey, "I do not like your extractor."

"Why?"

"Because the combs do not hang in the extractor-baskets the same as they do in the hive."

"Why, that makes an extractor so cumbersome and awkward," we interposed.

"Not at all," said he. "My can is only 30 inches in diameter and 30 deep. The baskets are made to take the combs just as they hang in the hive, and will hold four frames at a time. When I pick a frame out of a hive I do not have to turn it over endwise, and let it down into a deep basket. I pick it up just as it comes out of the hive, and put it squarely into the machine. In reversing the combs there is another advantage. Combs pick up easier, and go back into their respective places with less trouble. Why," said he, "I can not begin to extract the amount of honey with one of your extractors in a day that I do with one of my machines, and I have tried both."

"What gearing do you use?" we asked.

"The upright."

Mr. C. has the reputation of producing immense crops of honey, and he also runs, in connection, a farm; and with the help of one assistant he does the work alone, practically. We have not had calls for an extractor to hold the Langstroth combs as they hang in the hive, to any great extent. We are quite willing to make whatever bee-keepers want, although it should be remembered that such an extractor would cost more, and very possibly would not please some as well.

Our subscription list is now 10,097.

WHO IS RAMBLER?

WE will tell you in our next issue, and give you one of those beautiful half-tone portraits of him.

"DOWN BRAKES!"

A MOST excellent article appears from the pen of L. C. Axtell, on page 169. We commend it to the thoughtful consideration of every reader who is interested in new developments.

CHALON FOWLS.

WE have just had a very pleasant call from Mr. Chalon Fowls, of Oberlin, O. He is one of those enthusiastic and thoroughly practical bee-keepers whom it is a pleasure to meet. He is so full of bee-lore that *even an editor of a bee-journal* may get some new ideas in talking with him.

REFRESHING RAINS IN CALIFORNIA.

THE following little gleam of news comes to hand from one of our California subscribers:

> Our long drouth in Southern California is at last broken by a most refreshing rain of 3½ to 4 inches at this place. Of course, we feel wonderfully thankful, for it not only puts our honey prospect on a good footing, but almost insures a general variety of crops. ALLEN BARNETT.
>
> Whittier, Cal., Feb. 17.

SECTIONS MADE OF RED WOOD.

MR. J. W. UTTER, of Amity, N. Y., sends us samples of sections made of red cedar. The wood is of a reddish-pink cast, and has the characteristic odor of an ordinary leadpencil. Mr. U. says these sections set off the honey, and make the combs look whiter. By the way, wouldn't that strong odor of red wood rather give a flavor to the honey? It would be like making butter in a new cedar churn. The butter would surely taste of it.

TWO MORE NEW BEE-JOURNALS.

THE first one, a monthly, hails from Berlin Falls, N. H., and is entitled the *White Mountain Apiarist*, and contains 12 pages. The second has 16 pages and a neat tinted cover. It hails from San Francisco, Cal., and bears the name of the *California Bee Keeper*. This latter is very neatly and tastily printed. Let's see: Mr. Newman, of the *A. B. J.*, a few weeks ago counted up five new bee-papers for the new year, and here are two more—seven in all. Still there is room. Next!

P. S.—One of our compositors suggests, on seeing the above, the wisdom of starting an obituary department for bee-journals. Two have already suspended publication within two months—not of the number, however, of the new year. *We* were not mean enough to think of such a thing; but, say, if the new publications continue to start up at this rate we shall have to have a department of "New Bee-Journals."

THE EDITORIAL "WE" IN THIS DEPARTMENT.

OUR readers will observe that we have been employing the plural form of the personal pronoun in this department, in spite of the fact that Dr. Miller has urged in the *Bee-Keepers' Review* some very good reasons why the singular form of the word should be used. We like the personality of "I," but do not see how we can consistently use it with justice to other members of the Home of the Honey-bees who use their brains. E. R. R. dictates most of the editorials; but while in most cases the editorials are the expressions of his own opinion individually, they are also very often the expression of three or four in our establishment. For instance, take the matter of using square kerosene-cans for shipping California honey. E. R. R. consulted Mr. J. T. Calvert, business manager, and the shipping clerk in the express department, as well as several of the boys who have to do with the handling and testing of the honey in these oil-cans. Now, we can't very well say *he* did so and so; but we could say with truth that *we* did. Very often an editorial is suggested by our superintendent, and an opinion is rendered by him; and E. R. R., in conning it over, digests it and finally gives it to the stenographer; and it very often happens that as he takes it down he suggests some other ideas. E. R. R. fears that, if he were to use the singular pronoun, he would be unfairly credited with an unusual amount of wisdom; and if it seems necessary, for one reason or another, that the individual personal "I" should be used he adopts it, and then he signs his initials. For instance, if he picks a bone with Mr. Heddon, the latter knows who is responsible for the statements.

GRAND RAPIDS LETTUCE, ETC.

IT is refreshing to notice that my two children in the line of garden products, namely, Grand Rapids lettuce and the Ignotum tomato, are taking such prominent places in the seed catalogues of the world. Perhaps I should say the two children I *introduced*, for of course I did not originate either of them. I believe that few or none of the catalogues give me any credit for my efforts in that line; but so long as they have met with great favor, I do not know that it matters. I omitted to mention that our friends at the Experiment Station, at Columbus, have made some very careful experiments to determine how much of an improvement the Grand Rapids is over its parent, the Black-seeded Simpson, large beds of which were in their greenhouses, side by side. The Grand Rapids shows a marked superiority. It has a better color, and will keep longer out of ground; so the claims that our friend Eugene Davis made for it are certainly honest and deserved. By the way, quite a few do not seem to understand that the Grand Rapids lettuce is just as well calculated for outdoor culture as in the greenhouse. As it does not form a head, however, a good many prefer the Boston Market or Henderson's New York for growing in the open air. A. I. R.

HUBER LEARNING TO READ.

As the young hopeful is now nearing seven years of age, and has never heretofore manifested any special liking for books, I began to be a little surprised. If he is going to be a chip of the old block, thought I, he must pretty soon begin to get a glimpse of the wonders this world has to offer, especially in the line of literature. Well, about a week ago he took a great fancy to a book called "Bible Pictures, and what they Teach us;" and before we knew it he was spending all his leisure time poring over its pages. When Sunday came, of course there was no reason why he should not continue, with *such* a book. His favorite attitude is to spread the book and himself on the floor, in the center of the room. In this way he can change his position, and sprawl out first one way and then another, and thus he keeps it going. After dark he has a big bright lamp down on the floor by his side. I was a little curious at first to see what book he had selected among the multitude of books that are to be found almost everywhere. The book is the work of the author of Story of the Bible. A. I. R.

A NEW METHOD OF TREATING DISEASE WITHOUT MEDICINE.

WATER CURE APPLIED INTERNALLY AS WELL AS EXTERNALLY.

Wash ye, make you clean.—ISA. 1: 16.

With the present amount of interest in this matter of internal bathing, or the use of the "drugless remedy," as it has been termed, I feel as if I could no longer keep still consistently; and even though the subject I take up may seem to some an indelicate one, when we take into consideration the amount of human suffering that may be relieved by it I think we are excusable for talking plainly, and even using very plain terms, in print. In Titus, 15th verse of the first chapter, we read, "Unto the pure, all things are pure; but unto them that are defiled and unbelieving is nothing pure; but even their mind and conscience is defiled."

One reason why I feel moved to take the matter up to-day, and make it as plain as I know how, is that so many are, at the present time, *making capital* of selling one of the uses of pure water, to their fellow-men, as a *secret*, as if it were right or proper to receive money for telling how to make use of God's gifts, such as pure water, sunshine, pure air, etc. It seems sad to me that at least a *part* of the world should be stumbled over such a simple matter, or should imagine it right to keep from our neighbors a knowledge of a plain, simple plan of removing suffering by the use of water; yes, water, and nothing else. If any one should feel like questioning my authority or my moral right to make this secret free and public property, I will quote, at the outset, from a little book published by Fowler & Wells in 1847.

The book referred to is "The Water-cure Manual," by Joel Shew, M. D., copyrighted in *1847*, printed by *Fowler & Wells in 1850*. Speaking of these injections Dr. Shew writes:

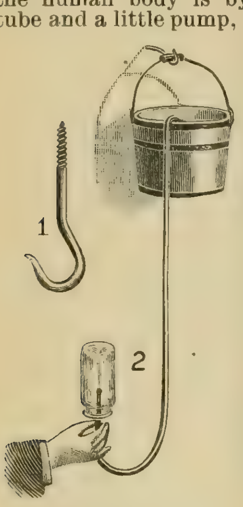
"They may be repeated again and again, n as great quantity as desired. . . . A good mode, too, is to take a small injection, a tumblerful, more or less, that is retained permanently, without a movement before morning. This is very soothing to the nervous system; aids in securing sound sleep, and, by its absorption in the coats of the bowels, dilutes acrid matters therein, tonifying and strengthening likewise those parts, and aiding materially in bringing about natural movements."

After naming various diseases for which this remedy is invaluable, he says:

"This statement will cause sneering, I know; but it is no fancy sketch. The thorough washing out, so to say, of the lower bowels, by which the peristaltic, or downward, action of the whole alimentary canal, is promoted, and by the absorption or transudation of water its contents are moistened and diluted, and the whole of the abdominal circulation is completely suffused by that blandest and most soothing of all fluids, pure water. Whoever understands well the sympathies and tendencies of these parts of the human system will at once perceive the truth of what I affirm."

The above, you will notice, contains the whole of the secret—or, at least, so much of it that no reasonable individual can pretend to call it new, or a real discovery of the last few years. Our older readers will remember vividly the time when Fowler & Wells created such an excitement throughout the world by what they accomplished by the use of water and nothing else—water used hot or cold as the occasion demanded, or lukewarm. Vapor baths also was another form of using hot water. While, perhaps, all the claims made fifty years ago have not been fully realized, yet I feel sure the world has been made better as well as *cleaner* ever since this water-cure excitement. At different times the use of water in large quantities, taken into the system by way of the mouth, has had its advocates. Dr. Salisbury for many years has been accomplishing a good deal by "feeding" his patients on *hot water*. We have all seen painful sprains and bruises cured almost as if by magic by the use of water as hot as the patient can bear it. If you want to get out a corn, first soak your foot in hot water; and many surgical operations can be performed with comparative ease where hot water in *sufficient quantity* applied for a *sufficient length of time* is used to relax the muscles and to soften the skin and flesh. Physicians have for ages (for aught I know) used water, both hot and cold, in the form of injections; and the wonder is, at the present time, that they have been working so close to a great discovery, as it has been called, without realizing the wonderful things to be accomplished right along in that line. Perhaps my good brethren of the medical fraternity feel like smiling a little at this last remark of mine. Well, smile if you like, my good friends; in fact, I rather think you had better smile, for a world of suffering people are beginning to smile right along on this line, and we are *going* to smile and have more vigor and energy to thank God for this new gift.

As near as I can make out, the discovery consists in using more water—perhaps hotter water in some cases—and using it for a greater length of time. If we wish to wash a jug, it is an easy matter to make the outside very clean. We can use hot water, soap, and ashes, if need be. We can rub and scour dirty spots; we can use a brush and a cloth, and some sand, if need be, but not so with the inside. You can pour in hot water and pour it out again. You can put in soap and ashes, and shake the jug vigorously, and you can put in water again and again, until you judge by what comes out that it is clean enough to be used for food. Well, this matter of internal bathing is a good deal as it is with the jug. We want lots of water; and in order to perform its office thoroughly, it may be necessary to let this water remain for some time, just as we let it remain for some time in the jug, that it may soak up and loosen accumulations on the sides, where no man can see. After this soaking-up process, a vigorous shaking will probably do much to remove every last vestige of accumulation. A customary way of introducing hot water into the human body is by means of a rubber tube and a little pump, or ordinary syringe, such as we find in great plenty at our drugstores. But I have found something not only very much better but even cheaper; and this little picture will, I think, make it all plain.



APPARATUS FOR INTERNAL BATHING

Fig. 1 represents an ordinary screw-hook, made of heavy wire, such as you get at the hardware store for two or three cents. This is to be screwed into the wall so as to support a pail of water. Instead of hanging the pail as in the cut, however, I would turn the hook a quarter around and hitch it on to the pail at the ear right where the bail is attached to the pail. The rest of the apparatus is simply a piece of rubber tubing (¼ inch, outside diameter) about five or six feet long. Twenty or twenty-five cents would cover the whole cost of the apparatus. Where the rubber tube goes over the side of the pail, it must be kept from slipping by means of a little wire staple put across it; or you can, if you choose, tie it by a string at one of the ears of the pail. It should go inside of the pail so as to reach to the bottom, that it may take out all of the water. To start the water, throw the tube in the pail, so it sinks clear under the water. Now take hold of one end; and as you do so, pinch the sides of the tube so as to close it. Bring it over the outside of the pail, and the water will run of itself. If you bring it down below the pail, as shown in the cut, the water will be thrown from the end of the tube with considerable force; and it is just right to wash out a jug, bottle, or any thing else, for the force of the jet will make it strike every part of the bottle. Now, you are to cleanse the human body just as we wash out the glass jar in the figure. Please bear with me now, friends, a little, even if I speak very plainly, in order that those who are awkward with such appliances, just as I was myself six months ago, may have no trouble in managing the matter. When I spoke to my mother about it, a few days ago, she said, more than 50 years ago she saved the life of a neighbor in just this way when no physician could be obtained. The doctor told her, when he arrived, that the woman would have been dead before he reached her had she not used this simple remedy. The only difficulty about the operation is in introducing the end of the rubber tube into the body; and this, I suppose, would be an impossibility with the average patient did we not depend upon the good offices of the hot water before mentioned, in its power of relaxing the muscles. The pail should be at least two-thirds full of water, and I would have it about as hot as it can be and permit you to hold your hand in it. Now let this stream of hot water play for a little time against the external part of the organ that ordinarily closes itself involuntarily by muscular contraction. In a very brief time the hot water will have the effect of relaxing the muscles, and after the pressure of the water has forced a little of the liquid through the opening, all difficulty in that direction has disappeared. The question naturally arises, "Is there no danger of injuring the delicate machinery of the human system?" I am sure there is none whatever. The more water you can get into the *colon*, as physicians term it, the better. More of this, however, anon. I am told by members of my own family, however, that not every one can use a simple rubber tube as I do. In that case, put on the end of the tube a hard-rubber nozzle, such as is used on an ordinary syringe. I presume different people will need to vary the plan somewhat. But I have never heard of anybody yet who did not succeed finally in getting the water to fill the colon in a satisfactory way. Introduce as much water as possible. Two quarts is better than one; and if you can store away a gallon you will probably make more effective work than with a smaller quantity. If it persists in bursting out, use a cloth or other means to restrain it. I would first wash the colon clean from every thing it contains. Get out every thing that can be made to pass out with the water; then fill up again with clean water, retaining it while you walk about; or if there is difficulty in removing all accumulations, get some friend to roll you and shake you, kneading the bowels, if need be, the same way I spoke of in cleaning the jug.

☞Right here comes something of my own invention; that is, I have not heard of anybody else using water in *just* the way I do. It is well known that a running stream will thoroughly cleanse many substances better than any other means of using water. The reason is, the current constantly carries away all impurities, and fresh clean water is constantly taking the place of that charged with the matter to be removed. Well, I accomplish the above result by letting the rubber tube remain in its place until the colon is thoroughly cleansed, and the water entirely emptied from the pail. The plain rubber tube, without any nozzle of any kind, gives a larger stream of water, and finishes the cleansing much quicker, than where the hard-rubber tube is used. If you do not find yourself cleaner than you have been before in years I shall be mistaken.

Let me give you a little of my experience: During all my life I have been more or less subject to what is called summer complaint and trouble with the bowels. My wife, years ago, recommended this water remedy as ordinarily applied by physicians. But I got a notion in my head that it was unnatural, and tinkering with Nature's business. The very thought of the thing, also, had something repulsive about it to me. I thought it was well enough for old women, and possibly for babies and sick people, and so I went on suffering. After I had paid $4.00 for the secret, however, I could not very well do less than to make a test of the thing that was recommended so highly. Of course, I succeeded without a bit of trouble; and, to my astonishment, before I got through I removed a vast amount of trash of different kinds that my nose bore vivid evidence to being unfit to lodge in the human system. Now at this time I was not conscious of being in particularly poor health. In fact, I did not suppose that I needed any remedy of any sort; but in my eagerness to see whether the new drugless remedy was what it claimed to be, I determined to give it as full a test and examination as I could. In order to see whether any injury or even unpleasant symptoms could result from a very frequent use of the internal water bath, I used it for some time, every day; lately from two to three times a week. I was agreeably surprised to find that the very offensive smell given forth on first using it did not manifest itself again; and I was led to conclude that this superfluous matter, if taken from the system at once, need not be particularly offensive. On waiting, however, for ten days or more, the same peculiar offensive smell was present; and after having used the remedy for six months or more, together with the testimony of great numbers of others, I am ready to conclude that it is no more harmful than bathing the body, or even washing the face. Some may urge that it is not according to nature. But, my friends, few things that we do nowadays are "according to nature." I am not sure that washing the face is "according to nature." I am sure, however, that washing the whole body greatly *assists* Nature in her efforts to ward off disease. The Bible commends it in our text. When you urge "nature," you should remember that man is uneducated by nature. The savages in the isles of the sea are a specimen of nature without civilization and the restraint of Christianity. They are not only heathens but cannibals. Now, I can not tell why God left humanity through all these ages without this knowledge which seems at present so conducive to our health; and when we come down to the real truth of the matter, he did *not* leave us without it. The thing has been before us for hundreds of years. We simply have been dull in appropriating the knowledge that was before us so long.

I do not know how many forms of disease this matter of internal bathing will remove. I suspect, however, that people in general will enjoy much better health in every way if the waste matter of the system be thoroughly removed about as fast as it accumulates. Typhoid fevers are considered at the present day as being the result of bad air, bad water, and unwholesome smells in our cellars and around our buildings. Is it any thing strange that the continued presence in the human body, of the most offensive matter we can imagine, should be the cause of disease? Physiologists tell us, if I am correct, that the elements and juices of our daily food are constantly passing into the circulation, even after they have passed the intestines and reached the colon. If this be true, our systems may be poisoned by secretions from this offensive matter. In a state of health, very likely nature takes care of this; but, unfortunately, few people are in the possession of full health. A man or woman who is thoroughly well in every way is the exception and not the rule.

During the past year, quite a few testimonials have been given in these pages in regard to this drugless treatment of disease, and I could easily fill this present number of GLEANINGS with testimonials, many of them astonishing ones. I will, however, for the present, content myself by giving you simply my own experience. For several years past I have been having occasional distressing spells of sick-headache, sometimes accompanied with vomiting. I am very apt to have these spells while traveling. One such attack nearly spoiled my visit at Dr. Miller's. While at Madison, Wis., during a beautiful winter night, I suffered from severe headache and sickness at the stomach for more than four hours. Those who have similar attacks know something about the suffering that accompanies it. So far as I know it was caused by eating a fine large apple during a buggy-ride across the country, the afternoon before. I thought that, if I was getting so I could not enjoy even an *apple* without trouble in my digestion, I was getting into a bad state. These periodical headaches kept getting more and more frequent, and I began to think my health was giving way in that direction. If somebody had told me, during that night in Madison, that I could have perfect relief in three minutes, without using any sort of drug or medicine, I would willingly have given *ten dollars* for the privilege of lying down to rest, and getting the sleep I needed, so as to fit me to enjoy the convention next day. Well, during these past six months I have had a number of attacks of this same sick-headache and distress from indigestion. The new remedy has given perfect and immediate relief every time. It seems to be the result of accumulation in the colon. When this is removed out of the way, and the apparatus thoroughly cleansed and put in working trim, Nature goes buzzing along her way. Once upon a time I used to run a small gristmill by windmill power. The mill would occasionally become choked, and it then had to be pulled to pieces, and the surplus meal got out of the way, and then it would go on as lively as ever. It seems to me that the human machine, given us by the great Father above, occasionally gets in this fix, and then the hot water gets it in perfect trim.

A great part of my earlier life was devoted to clocks and watches. I have also been more or less intimately acquainted with the physicians of our town. You may wonder what clocks and watches have to do with this human machine. Listen: Once or twice I have been invited to be present during examination of the human body, to determine after death where the difficulty lay. In one case that baffled the physicians, dissection revealed the fact that the valves of the heart had become ossified. At another time, a lady, a distant relative of mine, was doctored and drugged for months for a complaint that all doctors thought was of the reproductive organs. An examination after death showed these organs to be in a perfect state of health. The whole trouble was what they call intro-susception—a mechanical derangement of the colon. Of course, the trouble was in the *neighborhood* of the organ they were doctoring; but when the real truth came to light, they found they had been giving the most powerful drugs known, in the attempt to do something for an organ that had nothing to do with the disease that produced her death. Now, when a watch or clock is deranged we pull it to pieces to see what cog is broken or what tooth is bent. Then we can easily confine our efforts to the precise spot where the trouble is. How often I have wished the human body could be taken apart in the same way, that we might not be blundering in the dark! Well, the medical world is making great progress in just this line. By the use of the knife they go right to the point of disease, and in many cases fix it as we would fix a watch; and I confess that, when I first discovered that we could flood and cleanse at least a great part of the internal body, it seemed to me a great step toward what I had been so long looking for.

I believe our physicians do not all agree that this water thrown into the colon can make its way into the bladder; but when they take that ground, they are certainly at fault. Almost any one who has used the treatment *thoroughly* will tell you that quite a portion of the injected water can be passed off through the urinary organs. If this be true, then you can, by the same means, rinse from all impurities, accumulations, and secretions, the urinary apparatus as well; and I am sure that I have received great benefit in just this line.

Of course, great things are claimed for this new remedy. Some of those who sell the secret have enumerated a long string of diseases that may be cured by flushing the colon. I suspect there is great exaggeration in this line; but for all that, I would recommend that every person who is out of health from *any cause* should go to work carefully, and see what effect this treatment will have. If you are weak and in poor health, and take cold easily, be sure you do the work in an apartment sufficiently warmed so that you may not take cold by drafts or exposure. Although I have never heard of trying it for a patient in a chill, it seems to me it is far ahead of bottles of hot water, hot bricks, and every thing of the sort. I should say, from personal experience, that the hot water goes directly into the circulation; for I can feel the warmth clear to the ends of my fingers, and toes, after using it for, say, five or ten minutes. Just think of the effect on the system, of introducing into the body, say, half a gallon of water just as warm as you can possibly bear your hand in it! I have counseled with quite a number of good physicians before writing this, and the general opinion seems to be that it certainly can do no harm, even if it does no good. Therefore let us be clean and keep clean, as in the language of our text; and when we have done every thing we can along this line, we have certainly *paved the way* for Nature to go to work vigorously in her work of patching up and fixing up.

There is one unpleasant feature connected with this drugless remedy. In my instructions I have planned to have the pail hang up in the ordinary out-building belonging to most rural homes. The trouble is this: Before you get through, your clothing will become scented unpleasantly. A chimney attached to the out-building, so as to carry the bad-smelling air clear out at the top, would be a remedy. The close out-building, with a vault underneath, with no chance for a circulation of air, seems to be the worst arrangement we can have in this one respect. A very open building, so that the air can blow freely through and all around it, would probably not scent the clothing. A friend suggests that the form of water-closets used in cities, where water and nothing else is used to carry away accumulations, is a perfect arrangement for the drugless remedy. The Smead system will doubtless work beautifully, only they are not so arranged, usually, as to dispose of so large a quantity of water. If this new remedy, which commends itself to every one who loves cleanliness, comes largely into vogue, as I suspect it will, our out-buildings must be planned especially for them. It seems to me that this is a matter that not only our *health-journals*, but our rural and agricultural journals, should take in hand. In our family, one member has been perfectly cured of a chronic diarrhea of years standing, that threatened to be something very obstinate and serious. Another has been receiving great relief from a tendency in the opposite direction; and wherever it is used, so far as I know there has been but one verdict. A good many of my friends and acquaintances have paid $4.00 for the remedy; and in several cases no one knew they were using it until those around them began to notice a wonderful improvement in the general health. When questioned, this drugless remedy was the explanation. Our printers are instructed to have several thousand copies of this paper printed for free distribution. We will mail to any of the readers of Gleanings, or, in fact, to anybody else, just as many as they want, to give to whoever needs it; and the more calls you make for them the better I shall be pleased. I have had, as you may know, some experience in furnishing without pay things that benefit mankind. He who is working to benefit his fellows will always find the wherewith. God himself will see to it, when the work is done within the bounds of reason, and in a Christian way. I should be glad to answer any questions our friends may see fit to ask. One great reason for writing this paper is the *general* desire for information in regard to this whole matter—not only from my own acquaintances here in Medina, but from far-away friends.

SPECIAL NOTICES.

THE HUBBARD SECTION-FORMER.

We can furnish this machine, described elsewhere, for $2.50. It weighs 24 lbs., and its extreme length is 5 feet.

THE HONEY MARKET AT MEDINA.

Honey is going off some better of late, especially to-day (26th) when we are shipping 100 cases (12,000 lbs.), in three lots. Most of this is for manufacturing purposes, and goes at a special price. For prices we refer you to page 43 of No. 2, current volume.

PLANET JR. CULTIVATORS AND TOOLS.

We have the new 1891 catalogue of these valuable garden implements. A number of new tools have been added to the list, and old ones improved. Besides, we can make better prices than usual. We have the catalogue ready to mail on application, and in each is a sheet giving our net prices, which are from 15 to 50 per cent below catalogue prices. If interested, write for catalogue.

MAPLE SUGAR AND SYRUP.

The maple season opened early this year, and the sugar and syrup produced thus far excel the average in quality. We have a limited quantity on hand, which we can furnish at the following prices: Syrup in 1-gal. sq. cans at $1.20 each; $11.00 for 10; $21.00 for 20 cans. In 5-gallon cans, if preferred, at 5 c. per gallon less, when we have it put up this way. Choice sugar at 10 and 11 cts. per lb.; ½ ct. less in 50-lb. lots; 1 cent less in barrel lots of 300 lbs.

WHITE-CLOVER SEED.

We have a nice lot of this, which we bought so as to be able to make the following price: $8.00 per bushel; $4.10 per ½ bushel; $2.20 per peck; 18 cts. per lb. White-clover seed has always been higher than alsike till this year, but we can now sell it lower. The time to sow these seeds is during this and the next month, according to locality. Alfalfa clover seed at $7.00 per bushel; $3.60 per ½ bush.; $1.90 per peck; 15 cts. per lb.

JAPANESE BUCKWHEAT WANTED.

Those having choice clean Japanese buckwheat seed to sell will do us a favor to mail us a small sample, and write how many bushels (50 lbs.) you have to sell, and the price you ask for it. Remember, that, as we are selling it lower than last year, we expect to buy it lower. As a rule, it is selling for about what the millers pay for it to grind. Choice clean seed brings a little higher price.

ALSIKE CLOVER SEED.

We advanced the price of this the first of January to $9.00 per bushel; $4.60 per ½ bushel; $2.40 per peck; 20 cts. per lb., bag included. Since then the market has been very firm—at one time as high as $9.00 wholesale, in large lots, bags extra. We expected to have to advance the price again, but the demand has slackened, and the market is easier, so that we propose to leave our price where it is, although at this price we sell on a very small margin. We have choice seed, ready to fill orders promptly.

CAULIFLOWER SEED FROM H. A. MARCH.

We have just received by mail a pound of seed, and here is what friend March says about it:

> It is of 1890 growth, and I cut and sold in market every head that was not "perfection." It is really stock seed that I grew last year. My reports from the stations are better this year than last; and all growers who used my Puget Sound seed are sending for it again this year. H. A. MARCH.
>
> Fidalgo, Wash., Feb. 7.

The price will be 5 cts. per packet; ⅛ ounce, 25 cts.; ¼ ounce, 40 cts; one ounce, $1.50. Our friends will notice that these prices are lower than they ever have been before, and at the same time the quality of the seed is superior to any thing that has ever before been raised. When you get an orthodox *bee-man* to raising seeds, or any thing else, he generally "gets there" sooner or later.

WHITE AND CREAM SECTIONS.

Owing to an exceedingly open winter in Ohio a year ago, there was very little basswood cut till spring; and this spring, cut lumber is not a clear white, but more of a cream. Had we not secured about 150,000 feet of extra nice white lumber in Michigan, we should have been poorly supplied for white sections. This winter we have already twice our usual year's supply of the nicest white basswood we ever had. It will be a month or six weeks yet before any of this is dry enough to work into sections, and we have got to the end of our dry white from Michigan, last year's cut. We have white 1-lb. sections in stock, 7 to foot, 1¾ and 1⅞ inches wide; but, until our new lumber is ready to work we shall have to furnish other widths and sizes in cream color. Of course, we will furnish these cream color at a lower price, and many of you no doubt would just as soon have them at the lower price. We have just been rigging up our dry-house so we can hurry up the seasoning of the white lumber more than ever before; and as this comes to your notice this dry-house is running full blast. We have only a limited quantity of lumber for cream sections, and make this into sections only because of the present dearth of white. As soon as our white lumber is dry enough we shall discontinue the cream grade.

PRICE OF 1-LB. SECTIONS.

The price of a single thousand 1-lb. one-piece sections, with most of the manufacturers and dealers, is $3.50. In larger lots the price varies somewhat. To be uniform with other large dealers we make the following:

Quantity.	No. 1 white.	Cream, when we have them.
Less than 250, per 100	$ 50	$ 40
250 1-lb. sections	1 00	80
500 to 2000, per 1000	3 50	3 00
2000 1-lb. sections	6 50	5 50
3000 "	9 00	7 50
5000 "	14 00	12 50

Prices of white sections in larger quantities made known on application. Cream sections are not sold for less than above figures in any quantity.

VEGETABLE PLANTS FOR MARCH.

Well, I suppose we might as well confess we have not any, unless it be Palmetto asparagus and strawberries. We have a few cold-frame Jersey Wakefield cabbage-plants, but not enough good ones to offer them for sale. We have a great lot of plants raised from seed started in the greenhouse in January and February, but none of these will be real nice to send out before the middle of March. The same is the case with *transplanted* lettuce-plants and celery-plants. Plants from the seed-bed we have abundance, of cabbage, lettuce, and celery. But these are so delicate, and need so much care, both in shipping and transplanting, that about half of the time they do not amount to much. We can send them if you wish, at the prices we have in former years; but unless in the hands of an expert, they (seedlings) are often not a success. We can furnish asparagus-plants and strawberry-plants at 10 cts. for 10; 75 cts. per 100, or $6.00 per 1000. If wanted by mail, add 5 cts. for 10 or 25 cts. per 100. The four strawberry-plants we have selected to offer for spring planting are the Jessie, Bubach, Gandy, and Haverland. The Jessie and Gandy are growing in the greenhouse, so we can take them up at any time. The Bubachs are in the open air; but as we seldom have much frost in March, we can take them up almost any time. But of the Haverlands, our stock is already exhausted, and we are waiting for a shipment of 5000 plants which we have engaged as soon as they can be taken up. We are going to put these out in our rich plant-beds, under glass; but we prefer to have them make some growth before sending them to customers; therefore we can not furnish you Haverlands right off now. We can send all the rest promptly.

SECOND-HAND FOUNDATION MILLS.

We have on hand to dispose of, the following second-hand mills. As a rule we consider new machines the cheapest to buy, even at a much higher price; but there are circumstances when a man wants to make only for his own use, and can not afford a new machine when it may be profitable to buy an old one.

One 12-inch Dunham mill, formerly used by Dadant, and in fairly good order; makes heavy brood foundation with round cells. It sold when new at $50.00; will sell now for $18.00.

One 10-inch, our own make of several years ago, in fair condition, will make fairly good brood foundation; will sell for $10.00.

One 10-inch, of our make, in fair condition; used some more than the last, but well taken care of; a brood-foundation mill; will sell for $9.00.

One 6-inch mill, of our own make a number of years ago; better adapted to brood than section foundation; will sell for $6.00.

We have also a new 8-inch mill for thin surplus foundation, hexagonal cell, which is a size we do not advertise. It has not been used, and is first class. Price $17.50.

It seems as though we never had such a demand for foundation mills during what we call the "dull season" as we have had the past few months. We planned to fill all orders, and get some mills ahead so we could be more prompt in filling orders during the rush. We hoped, also, to get a little chance to experiment with a view to further improvement; but no chance has come. Instead we are behind on mill orders already, and have been more or less behind for a month or two back. We are working three men in this department, and turning mills out at the rate of nearly two a day, so we hope soon to be up and have some machines ahead. The mills we are turning out now are better than ever. On the ten-inch machines we now put only one pair of gears, which answers the purpose fully as well as two, as formerly used.

OUR $8.50 BEE-KEEPING OUTFIT FOR BEGINNERS.

There are a good many beginners who feel all at sea when they get hold of an apiarian catalogue. They want to start to keeping bees, but do not know exactly what they want, and can not afford to buy a lot of stuff they do not absolutely need—at least, until they have a larger apiary or more experience. For the convenience of just such people we have selected an outfit that gives a beginner all that he absolutely needs as a start. He should have a few hives, and the necessary tools for handling bees, and, not less important, a bee-book. We append the following table, selected from our 52-page catalogue, mailed on application.

One A B C book, bound in cloth	$1.10
One No. 2 bee-veil	.60
One Clark smoker	.50
Five No. 1 Dovetailed hives, complete, in the flat, for comb honey, including all inside furniture, sections, separators, etc.	5.56
2 lbs. light brood foundation	.96
Total	$8.66
We will lump the whole in for an even	$8.50

Directions for nailing and putting together will be put in with each package, giving sectional drawings showing each part. There possibly may be some who would prefer to see a hive nailed up. For $1.50 more, or an even $10.00, we will send a No. 1 Dovetailed hive, put up nailed and painted, complete, for comb honey. The material in the flat or knock down will be so packed that there will not be more than 2 lbs. of crating, and will go for third-class freight. The freight in this and adjoining States will be from 50 cts. to $1.00.

The A B C of Bee Culture will give the necessary instructions how to start. Read Transferring, Nuclei, Comb Foundation; and, as the season advances, Comb Honey and Swarming. Along in the fall you will need to read carefully Wintering. All of these subjects will be found in their alphabetical order.

FEEDING BEES IN WINTER — SOMETHING OF IMPORTANCE TO BEE-KEEPERS.

In England they advertise soft candy for placing directly upon the brood-frames for early spring or winter feeding of colonies where it is thought they are or will be short of stores soon. Several have reported that the ordinary Good candy (probably the same thing), made in 1-lb. lumps, and placed directly on top of the brood-frames, is just the thing to prevent starving. There are those who do not want to bother with making candy, so we have decided to furnish it in pound packages for 15 cts., by express or freight with other goods. The packages are all ready for use. The postal regulations are such that we can not send it by mail. Ten packages will be sent for $1.35, or, in bulk of 10 lbs., $1.20. Fifteen cents, if it saves a colony, is money well invested.

BEES & SUPPLIES FOR IOWA.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address *Oliver Foster*,
5-tfdb Mt. Vernon, Linn Co., Iowa.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of hives, queens, etc., from the following parties:

A. A. Weaver, Warrensburg, Mo.
Roe & Kirkpatrick, Union City, Ind.
D. E. Jacobs, Longley, O.
F. H. Dunn, Yorkville. Ill.
C. W. Costellow, Waterboro, Me.
S. Valentine, Hagerstown, Md.
Bittenbender & Jordan, Knoxville, Ia.
Chicago Bee-keepers' Supply Co., 65 Clark St., Chicago, Ill.

The following are from our press:

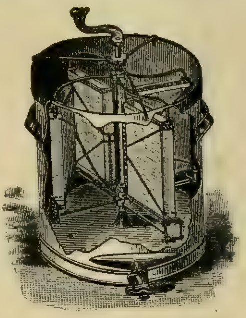
J. F. Smith, Dalton, Pa.
W. S. Bellows, Ladora, Ia.
A. F. Fields, Wheaton, Ind.
W. D. Soper, Jackson, Mich.
J. J. Bradner, Findlay, Ohio.

CONVENTION NOTICES.

The Bee-keepers' Association of Sanilac, Tuscola, and Huron Counties, Mich., will hold its fourth semi-annual meeting in the Court house at Caro, March 11 and 12, 1891.
J. G. KUNDINGER, Sec'y.

The Western Bee-keepers' Association meets in Ridetown, Ontario, March 18.
G. C. SCOTT, Sec'y.

The Bee-keepers' Association and Fair will be open May 6. Open to all.
H. SMITH, Sec'y.
Ionia, Mich.



EVERYTHING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.
CATALOG FREE
Please mention this paper.

SECOND-HAND TYPE FOR SALE.

PURE HONEY
12A Great Primer Copper-plate. $1.25.

GREAT PRIMER Egyptian Condensed.
12A 25a Great Primer Egyptian Condensed. $1.00.

Great Primer Minster.
8A 18a Great Primer Minster. $1.75.

A B C Bee Culture
5A 14a Two-line Pica Minster. $2.25.

LONG PRIMER PLATE
12A Long primer Copper-plate. $1.00

NEW KODAKS.
11A 20a Great Primer Runic.

LONG PRIMER ALDINE, with l. .
34A 26a Long Primer Aldine. $1.25

Agricultural Society
3A 10a Spencerian Script. $1.00.

A. I. ROOT, Medina, O.

SEED POTATOES.

Catalogue free to all sending for it, or I will send it and one pound of either Early Albino, Lee's Favorite, New Queen, Perfection, Polaris, Puritan, Sunlit Star, Summit, Barstow, Bonanza, Empire State, Morning Star, Sylvan, or White Flowers free by mail for 10 2-ct. stamps; any 3, 50 cts., or by express or freight, any six, entire list, $1.00. 6-7d

H. C. MARKHAM, Ann Arbor, Mich.

☞In responding to this advertisement mention GLEANINGS.

100,000 STRAWBERRY-PLANTS.

Best new and old varieties. Prices low. Also Grapevines, Raspberry, and Blackberry plants, etc. Send for price list. **D G. EDMISTON,**
6-7-8d Adrian, Lenawee Co., Mich.

Cole's Garden-Plow.

I will sell one or more garden-plows at 30 per cent off from the retail price, to any one ordering before an agency is established in his place; said party must send to me for circular and price.

G. W. COLE, Canton, Ill.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✳ ILLUSTRATED,

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, Ohio.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 64, 63, 63, 63, 62, 33
25 green	12	100	100	1.75	
2 green	16	100	133	2 33	
5 green	24	100	200	3.50	140. 8, green; 200 black.
35 green	26	100	217	3 50	This is below reg. pr. of 1¾ c.
14 green	28	100	233	4.08	224. 224, green.
15 green	30	100	250	4.37	
6 green	32	100	267	4 67	
18 green	36	100	300	5 25	
6 black	38	100	317	5.54	269. black; price $4.70
5 green	38	100	317	5.54	258. black, price $4.50
3 black	40	100	333	5.83	317, black; price $5.54
7 black	42	100	350	6.12	
15 green	30	100	250	4 37	

A. I. ROOT, Medina, Ohio.

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

☞In responding to this advertisement mention GLEANINGS.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

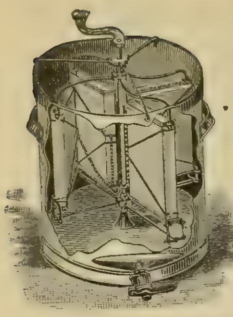
Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
12	2	20	⅝	18 in., 50; 72 in., 95, 27.
48	2	20	⅝	49, 25, 25, 6; 60 in., 47, 42, 32, 24.
42	2	19	¾	50.
60	2	19	¾	42, 38, 32, 11.
72	2	19	¾	134, 108, 103, 103, 100, 94, 88, 81, 73, 68, 67, 60, 50, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	23, 15.
36	2	18	1	122, 30 inches wide, 63, 25.
48	2	18	1	100, ; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 35, 22, 22; 60 in. wide, 67, 20.
36	2	17	1¼	42, 23, 15; 24 in. wide, 77.
48	2	17	1¼	78, 53, 32; 60 in. wide, 25.
12	2	16	1½	59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1½	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1½	60, 58, 56; 48 in. wide, 70, 48, 46, 40, 26, 19; 60 in., 62.
18	2	15	2	87, 61, 30; 12 in. wide, 100.
24	2	15	2	120, 100, 90, 69, 52, 33, 33, 13, 12.
30	2	15	2	127, 21, 6; 60 in. wide, 21, 20.
36	2	15	2	17, 13, 7, 7, 7, 6, 5.
42	2	15	2	121, 35, 26 23, 20, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 22, 14.
36	2	14	3	29; 42 in., 71
24	1½	20	1	39; 18 in. wide, 14; 30 in., 14.
42				85, 59.
30	1½	19	1	33, 33, 36 in. wide, 47, 47, 45.
48	1½	19	1	56; 72 in., 64, 63, 10.
18	1½	18	1⅛	40;
48	1½	18	1⅛	60 in., 65, 34, 19; 54 in., 12.
30	1½	16	2½	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1⅔	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78
36	1¼	18	2	15, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 82, 50.
32	1	18	2½	85, 32; 9 in., 32; 10 in., 20; 24 in., 23; 30 in., 69, 51
36	1	18	2½	37; 48 in., 30; 60 in., 59.
[illegible]	¾	20	2¾	33, 7; 36 in., 75, 55.
9	¾	19	3	128.
24	3	16	1	46, 19; 36 in., 86; 42 in., 14.
36	3	15	1⅛	63; 48 in., 60.
24	3	14	1⅞	150, 18½; 48 in., 45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15 10.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.



EVERYTHING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

Please mention this paper.

BEES & SUPPLIES FOR IOWA.

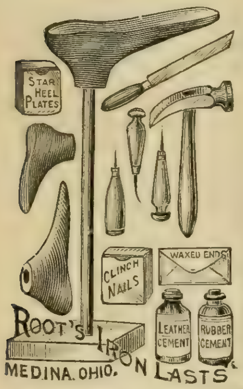
Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address *Oliver Foster,*
5-tfdb Mt. Vernon, Linn Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

Just Out—Something New.

Not Another "Patent Hive" to Rack Your Wearied Brains, but

ROOT'S
Household Repairing
OUTFIT.



This outfit will enable any one who can drive a nail, to do his own half-soling; boot, shoe, and rubber repairing, right at home. No pegs required; simply wire clinch nails. Saves ten times its cost every year. A convenience in every family. Entire outfit only $2. Agents wanted. Send postal for descriptive circular to

ROOT BROS.,
Medina, Ohio.

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE.

Our New Factory is Now Open

To receive orders for **Bee-Hives, Frames** of all kinds, **Shipping-Crates, Sections, Honey-Cans, Comb Foundation,** and **Smokers.** Write for price list to

GREGORY BROS. & SON,
5-tfdb Ottumwa, Wapello Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

ATTENTION, CALIFORNIANS!

I have for sale 16000 1-lb. V-groove one-piece white basswood sections, 1⅞ wide, made by A. I. Root. Price $5.00 per M, put on cars at King City, Monterey Co., Cal. For 5000 or more, write for special prices to C. K. ERCANBRACK, JUN.,
Lonoak, Monterey Co., Cal.

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS

Send for my illustrated Catalogue of Bee-Keepers' Supplies. Prices reasonable.

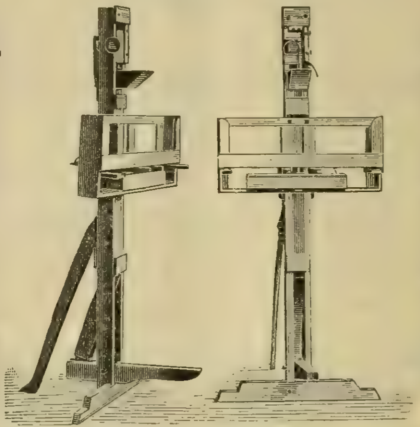
F. W. LAMM,
Box 106, Somerville, Butler Co., O.
3-8db Please mention this paper.

PHILO'S AUTOMATIC

SECTION-BOX GLUING-MACHINE,

For Putting Together and Automatically Gluing the One and Four-Piece Section-Boxes.

It Does its Work with Neatness and Despatch.



No Extra Time Required in Gluing.

This is the only machine on the market that will put the glue right where it belongs without wasting the glue or mussing the section.

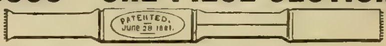
Price of the combined machine,	$6.00
For four-piece only,	5.00

E. W. PHILO, Half-Moon, N. Y.

☞In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.,
MANUFACTURERS OF THE

"BOSS" ONE-PIECE SECTIONS.


PATENTED, June 28 1881.

Will furnish you the coming season, one-piece sections, sandpapered on both sides, as cheap as the cheapest, and better than the best. Write for prices.
Watertown, Wis., Mar. 1, 1891. 6-7-9-11d

☞In responding to this advertisement mention GLEANINGS.

HO FOR CALIFORNIA!

FOR SALE. 100 Colonies of Bees. Full colonies, $3.50. Stanley Extractors, Vandervort Mill, and other fixtures. Send for descriptive price list and realize the bargains. Address

J. H. MARTIN,
Hartford, Wash. Co., N. Y.

HO FOR CALIFORNIA!

1tfdb Please mention this paper.

---

75 Fine Tested Italian and Albino * * * * * Queens For Sale at $1.75 Each.

Select tested golden Italian queens, $2.50 each. Select tested Albinos, $2.00 each. First come first served. Untested by April 15, $1.00 each, or 6 for $5.00, or 12 for $9.00. Orders booked now, and pay for queens when received. I guarantee safe delivery and satisfaction on every queen by mail. Thanks for last year's patronage.
4-8db **J. W. TAYLOR, Ozan, Ark.**

☞In responding to this advertisement mention GLEANINGS

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

BARRED

PLYMOUTH ROCKS.

Birds and eggs in their season. Cockerels $3 to $5; choice hens $2 each; eggs $3 per setting; 2 settings, $5.

MRS. F. P. HISH,
TOWER HILL,
SHELBY CO., ILL.

MUTH'S
HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD - BLAST SMOKERS.

Apply to ***CHAS. F. MUTH & SON,***
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

---

One Thousand Colonies

Of Black Bees in Box-hives, at $3.50 and $4.00, for May, 1891. *C. G. FERRIS.*
5-tfdb Miller's Mills, Herkimer Co., N. Y.

Established 1878.

SMITH & SMITH,

Wholesale and Retail Manufacturers of

BEE-KEEPERS' SUPPLIES.

KENTON, OHIO.

Price List Free. 4tfdb *Mention Gleanings.*

LOOK HERE, FRIENDS.

If you want Black or Hybrid Bees from March 15 to May 15, at $1.00 per pound; Hybrid Queens, 50c, Black, 25c, as long as I have them, send to me. I guarantee safe arrival and satisfaction. Have shipped bees successfully for 10 years to the northern States and Canada. 6 9db

MRS. JENNIE ATCHLEY.
Box V., Farmersville, Tex.

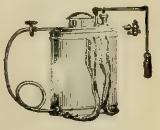
☞In responding to this advertisement mention GLEANINGS.

FOR SALE. Three or four S. C. B. Leghorn cockerels, as good stock as can be found in the world. Come and see them. Write for prices with your address on postal, and you will receive by return mail my new descriptive circular, free.
4-5-6d ROBT. C. SMITH, Swissvale, Pa.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.



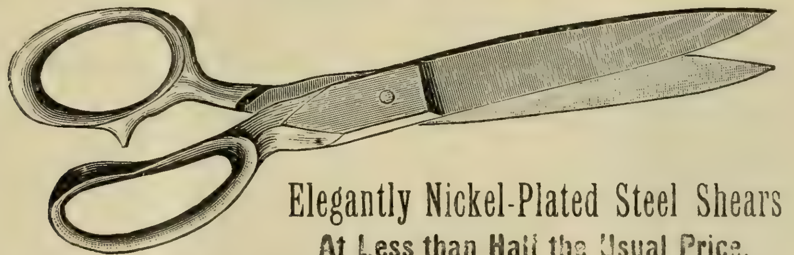
3 9db

SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

☞In responding to this advertisement mention GLEANINGS.

NICKEL-PLATED "LEADER" SHEARS.



Elegantly Nickel-Plated Steel Shears

At Less than Half the Usual Price.

TABLE OF PRICES.

Postage.	Name and size.	Prices Each.	 ½ doz.	 3 doz.
5	6 inch nickel Leader Shears	$ 20	$1 10	$ 6 00
5	6½ " " " "	25	1 25	7 00
5	7 " " " "	30	1 40	8 00
5	7½ " " " "	35	1 60	9 00
5	8 " " " "	40	1 80	10 00
6	8½ " " " "	45	2 00	11 00
7	9 " " " "	50	2 25	12 00

About two years ago we bought 150 dozen of above shears, and they have gone off like "hot cakes"—so much so that we have just bought another lot of 350 dozen, which are, if any thing, nicer than the other lot, most of which are gone. The others pleased so well that we got repeated and increased orders from the same parties. Neighbors of those who were fortunate enough to get a pair, on seeing them and learning the price, wanted a pair, and so the orders kept repeating themselves. We are always glad to give our customers a bargain which gives more than satisfaction, and this is one of them. You will see we have made special prices in quantities, and no doubt some of you can do a good thing for yourselves, as well as your neighbors, in getting a quantity and introducing them. They are put up ½ dozen in a box, and we can not assort ½ dozen; but we can give you larger lots assorted, ½ dozen of a kind.

A. I. ROOT, Medina, O.

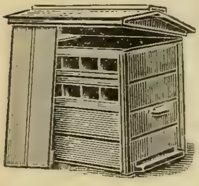
ADVANCED BEE-CULTURE;

Its Methods and Management.

I am now engaged in writing and printing a book that is to bear the above title. It is to take the place of my other book, *The Production of Comb Honey*, which will not be re-published. Although the new book will contain at least five or six times as much matter as *The Production of Comb Honey*, yet the price will be only 50 cts. The book is already partly printed, and will probably be out some time in April or May. If any of the friends would like to "help me along" in meeting the expenses of getting out the book, they can do so by sending their orders in advance. Such orders will be most thankfully received, and filled the *very day* the book is out. I will send the REVIEW one year and the book for $1 25. The REVIEW will be sent on receipt of order (I have plenty of back numbers to send it from the beginning of the year), and the book as soon as it is out. Stamps taken, either U. S. or Canadian. 10tfdb

W. Z. HUTCHINSON, Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.



DOWN THEY GO!

For the next few days $1.25 will buy our 8-frame chaff hive, with 2 T supers and 8 heavy top-bar brood-frames.

Send for PRICE LIST.

ROE & KIRKPATRICK,
Union City, Ind.

☞In responding to this advertisement mention GLEANINGS.

DON'T READ THIS.

For if you do you will send to R. E. Smith, Tilbury Center, Can., for your tins. I wish to say that we are making all kinds of tinware used by the bee-keeper. Honey-extractors of all sizes to suit Jones and L. frames, or to order. 60-lb. square tins. Also a large number of honey-pails, holding from 1 to 10 lbs., with bails. We are prepared to furnish bee-keepers of Canada with

ALL STYLES OF HONEY-CANS

this season of 1891. No. 1 tin used in all these goods. Send for price list of 1891, now out.

R. E. SMITH, Tilbury Center, Can.

☞In responding to this advertisement mention G

OAK HILL POULTRY FARM.

The home of the best general-purpose fowl for the farmers and the fanciers, the **Barred PLYMOUTH ROCKS.**

This year, as in the past, I will devote my five large coops to Plymouth Rocks only, and try to fill all orders promptly from first class stock.

Eggs at $1.50 per 13, and $1.00 for each additional setting in the same shipment. 6d

E. J. KENNEDY, Troy, Pa.

☞In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

SILVERHULL BUCKWHEAT

for seed. Free from all foul seeds. This buckwheat will outyield the Japanese.

YIELDED FORTY BUSHELS PER ACRE HERE

the last season. This buckwheat is profitable to sow for bees alone, to say nothing about the crop. Delivered on board cars here, in new grain-bags, at $1.00 per bushel. No order taken for less than two bushels. **EZRA G. SMITH, Manchester, Ontario Co., N. Y.**

In responding to this advertisement mention GLEANINGS.

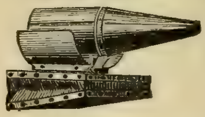
HAVE YOU READ MY

Ad. on **Inside Back Cover** of Gleanings, Feb. 1st? Also my ad. on **Page 117,** Feb. 15th **Gleanings,** about my **New Potatoes?** If not, do so at once. W. Z. Hutchinson, on page 45 of the Feb. *Review*, says, "They would almost **pass for a Sweet Potato."** If you intend to try them it is necessary for you to **order soon,** as they would not go half way round to the readers of Gleanings. Potatoes will be sent the first week in April. Safe arrival guaranteed. 5tfdb

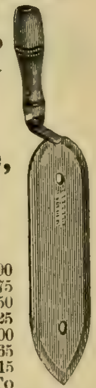
Jacob T. Timpe, Grand Ledge, Mich.

☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	$2.00
Conqueror "	3	"	"	1.75
Large "	2½	"	"	1.50
Extra (wide shield)	2	"	"	1.25
Plain (narrow ")	2	"	"	1 00
Little Wonder,	1¾	"	"	65
Uncapping Knife				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

WILL exchange 2 tons of Lake Erie fish guano, best corn phosphate in the world, for a good incubator, eggs for hatching, blooded sheep, or hogs.
6d A. B. BURKHOLDER, Butler, O.

WANTED.—For 1891, as learners, two brisk young men desirous of perfecting themselves in modern apiculture. Must be strictly temperate, and give good reference. S. I. FREEBORN, Ithaca, Wis.
4 5-6d

WANTED.—To exchange bees for a tubular boiler from 4 to 8 horse power. Correspondence solicited. D. S. BASSETT,
4-tfdb Farnumsville, Worcester Co., Mass.

WANTED.—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free.
2-7db C. W. DAYTON, Clinton, Wis.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange pure Brown Leghorn eggs for tested Italian queens. GEER BROS.,
5-tfdb St. Marys, Mo.

WANTED.—To correspond with parties who wish to improve their poultry. Fair dealing.
5-tfdb D. F. LASHIER, Hooper, Broome Co., N.Y.

WANTED.—An apiarist to take ½ interest in an apiary of 100 colonies Write for particulars.
5d J. C. FRISBEE, 172 Maple St., Denver, Col.

WANTED.—To exchange bees or this season's honey for Pekin ducks and Monroe Seedling potatoes. Address H. O. McELHANY,
5d Cedar Rapids, Linn Co., Ia.

WANTED.—To exchange McLaughlin type-writer, worth $9, for B. Spanish or W.C. B. Polish chicks, or eggs from standard varieties. A. N. RHODES,
New Castle, Ind.

WANTED.—To exchange 4 acres of rich level land partly improved. Good dwelling; 3 miles from depot. N. E. DOANE,
6d Breckenridge, Gratiot Co., Mich.

WANTED.—To exchange fruit trees and plants now, bees and queens in May and June, honey from crop of 1891, for bee hives and fixtures.
Address JOHN W. MARTIN,
6tfdb Greenwood Depot, Alb. Co, Va.

WILL exchange plum, pear, peach, cherry, and quince trees, for eggs of pure-bred poultry.
6d A. B. BURKHOLDER, Butler, O.

WANTED.—To exchange a 50-in. Columbia tricycle, ball bearings all around, good as new, a 5x8 view camera and outfit; a $\frac{1}{3}$ size C. C. Harrison lens; a World type-writer; for small engine and boiler, Barnes saw, or offers. W. H. BUTLER,
6d Clifford, Ind.

WANTED.—To exchange bees in 10-frame Langstroth hives at $5.00 per colony, for foundation at market price. A. C. BUGBEE,
6-7d Lochiel, Benton Co., Ind.

WANTED.—To exchange two new 7x10 printing-presses, with type, etc. Would sell cheap to make room for larger press; would take Barnes saw or supplies. MODEL STAMP WORKS,
6d Shenandoah, Iowa.

WANTED.—To exchange a good double-barrel, 12-gauge, breech-loading shotgun, weight 9 lbs., cost $24.00, loading tools, cartridge-belt, complete, for Barnes foot-power saw, Heddon new hives, divisible brood-chamber, or offers.
6d EZRA G. SMITH, Manchester, N. Y.

WANTED.—To exchange bees for young horse.
6-7d A. C. WALDRON, Buffalo, Minn.

WANTED.—To exchange prize-winning Brown Leghorn eggs—$1 per 15—for flowers, seed, or offers. 15d MRS. ELLA LAWS, Lavaca, Ark.

WANTED.—To exchange agricultural machinery and implements for bees and comb foundation. Address, stating what you want,
6d LOWRY JOHNSON, Masontown, Fayette Co., Pa.

WANTED.—To exchange a saw, with countershaft, belt, etc., and an Excelsior force-pump.
6-7d L. L. ESENHOWER, Reading, Pa.

WANTED.—Pure Italian queens, sections, nursery stock, or offers, for pure P. Rock eggs or Quinby hive-corner clasps. L. C. AXTELL, Roseville, Ill.
6tfdb

WANTED.—A Safety bicycle and Barnes combined saw. Write for list of what I have to exchange for same. 6d F. H. McFARLAND, St. Albans, Vt.

WHAT are we offered for a World type-writer, new, double case, cost $17? J. B. ALEXANDER,
6d Hartford City, Ind.

WANTED.—To exchange Root's Dove'd hives, sections, fdn., for Japanese buckwheat or offers.
6d A. B. BURKHOLDER, Butler, O.

WANTED.—To exchange some excellent offers for bees by the pound, and foundation.
6-7d L. L. ESENHOWER, Reading, Pa.

BEES FOR SALE.
COLONIES,
NUCLEI,
and QUEENS
at living rates. Send for circular and price list to
C. C. VAUGHN,
Columbia, Tenn. 6tfdb
☞In responding to this advertisement mention GLEANINGS.

FOR SALE (for 1891) cheap, for cash. Italian Bees and Queens. Address
OTTO KLEINOW, Apiarist,
6-7d 150 Military Ave., Detroit, Mich.

READY TO MAIL, TESTED ITALIAN QUEENS.
Reared last Aug., $1.75; after March, $1.50. Untested, from Doolittle's Select Mother, raised by his method, $1.00. Reduction on 3 or more. Orders booked now; pay when queens are wanted. 6-7-8d
JOHN B. CASE, Port Orange, Vol. Co., Fla.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.
My Carniolan and queen-raising apiaries, with the agency of the Chicago Bee-Keepers' Supply Co. at Topeka, with a large trade established. Reason of change to take charge of our Chicago depot.
J. B. KLINE, Topeka, Kan.
In writing advertisers please mention this paper.

Have you seen Evangelist Wolfe's new paper? Do you want a bright, lively, and out-spoken Gospel paper, published in the Cherokee Indian Nation? Subscribe for "John 3:16." Only 20 cts per year. Specimen copies free. Address "John 3:16" Company, Vinita, Cherokee Nation, Ind. Ter. 6-7d
John 3:16.
☞In responding to this advertisement mention GLEANINGS.

Printing, Note Heads, Bill Heads, Envelopes, Businss Cards 250 for $1.00 Post Paid. Good honest work and paper. 50 Ladies Cards in Steel Plate Script 25 c. No Samples. 12 Years in Business. Send Copy and dollar to
BURTON L. SAGE, New Haven, - Conn.

HONEY COLUMN.

CITY MARKETS.

SAN FRANCISCO.—*Honey.*—Since the last rains, the outlook for the coming crop is more flattering. However, we do not expect to see as large a crop as in the previous year. We now quote: Extracted honey, 5¾@6c. Comb, 2-lb. frames, 9@13; 1-lb., 10@15. *Beeswax*, 23@24.

SCHACHT, LEMCKE & STEINER,
Feb. 24. San Francisco, Cal.

ALBANY.—*Honey.*—Comb honey selling quite freely, and stock on hand getting quite small. Have received one consignment of comb honey since last issue. The demand for dark extracted honey is good. There is not quite so much call for light. *Beeswax* very scarce. We quote clover, 15@16c; buckwheat, 12@13. Extracted light, 8@9; dark, 7@8.

CHAS. MCCULLOCH & CO.,
Mar. 10. Albany, N. Y.

NEW YORK.—*Honey.*—Our market is bare of comb honey, and but little demand for any. California extracted is in good demand at from 6¾@7¼c a lb., and the market is well supplied with same. Extracted buckwheat is selling at from 7@7½c a lb., and stock scarce. No Southern at present. *Beeswax*, 25@27c. HILDRETH BROS. & SEGELKEN,
Feb. 26. New York.

DETROIT.—*Honey.*—Comb honey is quoted at 14@15 cts.; sales slow. Extracted, 7@8c. *Beeswax* firm at 27@28c.
Bell Branch, Mich., Feb. 19. M. H. HUNT.

ST. LOUIS.—*Honey.* Market unchanged; have had several inquiries for large quantities, say 15,000 lbs., extracted and strained. Prime *beeswax*, 27c.

D. G. TUTT GRO. CO.,
Mar. 9. St. Louis, Mo.

MILWAUKEE.—*Honey.*—The demand for honey is very moderate; supply of all kinds fair. One-pound sections, best, 18@19; good, 17@18; fair, 15@16; dark or old, 10@12. Extracted white, in barrels and half-barrels, 8½@9; same, in tin cans, 8½@9; dark, in barrels and kegs, 6½@7½. *Beeswax* wanted at 28@30c. A. V. BISHOP.
March 6. Milwaukee, Wis.

CHICAGO.—*Honey.*—Stock is not large, and for the best white comb in desirable shape there is a steady demand at 17@19c; any thing off in appearance is slow at one to two cents less. Extracted, steady at 7@8. *Beeswax* 27c. It is time now that all comb honey were on sale. R. A. BURNETT,
March 8. 161 So. Water St., Chicago, Ill.

FOR SALE.—600 lbs. white-clover and basswood honey, in 60-lb. cans; 10c, f. o. b. F. G. FENTON,
Box 221, Bluffton, O.

FOR SALE.—"Choice orange-blossom" extracted honey in 60-lb. tin cans, or kegs holding 14 to 15 gallons. Price $1.25 per gallon, f. o. b. cars here.

ARTHUR F. BROWN,
6 9db Huntington, Putnam Co., Fla.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb E. J. BAXTER, Nauvoo, Ill.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-tfdb. Mt. Vernon, Ia.

FOR SALE.—120 lbs. choice clover honey, in 20 lb. cases. F. H. MCFARLAND, St. Albans, Vt.

Bee - Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM McCUNE & CO.,
21-20db **Sterling, Illinois.**
☞In responding to this advertisement mention GLEANINGS.

5-BANDED GOLDEN ITALIANS

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones ⅕ to ⅘ yellow. Won **1st Premium at Ill. State Fair** in 1890. Nearly 300 booked for 1891. Warranted Queens, May, $1.25, 6 for $6.00; after June 1st $1.00, 6 for $5.00. Special discount for large orders as to dealers. Have your order booked now in order to get them when wanted. Satisfaction guaranteed. No foul brood. Select Barred Plymouth Rock Eggs, $1 per 13. Good reference given.

1tfdb **S. F. & I. TREGO, Swedona, Ill,**
☞In responding to this advertisement mention GLEANINGS.

QUEENS, QUEENS.

GOLDEN CARNIOLAN AND ITALIANS.
Price List Free.
H. ALLEY, Wenham, Essex Co., Mass.
Please mention this paper. 6tfd

Bees & Supplies for Iowa.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster,**
5-tfdb Mt. Vernon, Linn Co., Iowa.
-34d Please mention this paper.

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**
Bleachers, Refiners, and Importers of Beeswax,
5-16db **Syracuse, N. Y.**
☞In responding to this advertisement mention GLEANINGS.

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.
M. S. ROOP, 520 East Broadway,
6-17db Council Bluffs, Ia.
☞In responding to this advertisement mention GLEANINGS.

A PAYING CROP.

Grow Popping-Corn. We bought 50 carloads last season, paying from 2½ to 3½ cts. per pound on the ear. 6-7-8.9d

Will Want 100 Carloads Next Season.

Write us, and will advise you as to best yielding variety to plant and pop.
H. R. WRIGHT, 326 Broadway,
Albany, N. Y.
Reference: Albany County Bank.
Please mention this paper.

I WILL GIVE 10 PER CENT DISCOUNT

on all orders received during March. Don't wait until the busy season before **ALBINO** you order your queens, for it sometimes causes delay. 6d
A. L. KILDOW, Sheffield, Ill.
Please mention this paper.

$5.00 IN MAY, AND $4.50 IN JUNE,
—WILL BUY—
A Strong Full Colony of Pure Italian Bees

in Root's new Dovetailed or the old Simplicity hive, as you prefer. Each to contain a fine tested queen and plenty of bees and brood. Everything first-class. Pure Japanese Buckwheat, per bu., $1; ½ bu., 60c; ¼ bu., 35c, bag included. Scotch Collie Pups, $4 each.
N. A. KNAPP, Rochester, Lorain Co., O.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

Published by A. I. Root, Medina, O.

Vol. XIX. **MAR. 15, 1891.** **No. 6.**

STRAY STRAWS

FROM DR. C. C. MILLER.

DON'T YOU LONG to see the bees at work?

THE TRADE-MARK isn't booming so much.

THE *Review* wants no trade-mark. Right, Hutch.!

ISN'T THAT a neat engraving at the top of the page?

HON. EUGENE SECOR is re-elected President of the Iowa State Horticultural Society.

HOW TO GET a stand of melilot might be a good subject for experiment at Michigan Agricultural College.

J. H. LARRABEE, a live bee-keeper from down east, has been chosen to help Prof. Cook in his apicultural experiments.

THE CALIFORNIA BEE-KEEPER is out—Vol. I., No. 1. It *ought* to live—gotten up in fine shape, and the salutatory has the right ring to it.

"STORIFYING" is what our English cousins think we ought to say instead of "tiering." I'm afraid they're right. "Piling" might do.

"NET WEIGHT ONLY" marked on the end of the case, says Henry Segelkin (GLEANINGS, p. 133). Please tell us why only net, and why on the end.

A NEW SMOKER, by A. G. Hill. Looks a trifle like a Bingham upside down. Has the advantage that it is always right side up, whether in use or idle.

PROMINENCE is to be given just now at Michigan Agricultural College to experiments in wintering, improvement in bees, and planting for honey.

OLD KEROSENE-CANS, says the *California Bee-keeper*, should *not* be cleaned out for honey. Just leave them dirty, and then fill them up with—kerosene.

"If God has made this world so fair,
Where sin and death abound,
How beautiful beyond compare
Must Paradise be found!"

AN EGG IN A CELL stands up straight the first day; second day at an angle of 45°; third day, it lies flat on the bottom of the cell. I learned that from Cowan's new book, "The Honey-Bee."

GEO. F. ROBBINS writes that he has tried it, and knows that enameled cloth is better than painted muslin for hive-covers. He puts the enamel side down and then paints it. It doesn't take one-third as much paint as muslin. Still, tin is good.

GOOD FOR WISCONSIN! Here's a resolution at their State convention: "That this Association send one delegate to the next American Bee-keepers' convention, and pay $10 toward his expenses."

PUTTING BEST PREMIUMS on light honey, and little or nothing on dark honey, is scratching out our own eyes. So says Hasty in an article in *American Bee-keeper*. The whole article is excellent.

IN HAULING BEES or honey in day time, A. N. Draper tells in *A. B. K.* about loading up close to the hives, and, by means of a 40-foot rope, hauling the wagon some distance before hitching on regularly. Good idea.

LINDEN-TREES are among the most desirable for shade on the streets. Wouldn't it be a good plan to give them away to be planted on the villags streets?—cheaper than to plant them on your own ground, just as good for you, and a kindness to your neighbor.

WHAT SECRETIVE PEOPLE those Michiganders are! There's Prof. Cook. It was darkly hinted that the government was doing something for the benefit of bee-keepers, and now Hutchinson brings out the fact that an experimental station is started, with Prof. Cook as chief engineer—a grand choice.

GERMAN BEE-KEEPERS are all stirred up over the matter of *heating* in winter. Its leading advocate, Pastor Weygandt, is considered by one party as an investigator to be placed alongside of Dzierzon, while the other party looks upon him as an idle dreamer. Details as to carrying out his plans are so indefinite that at present we can only wait to see what others do.

PROF. COOK says he wants suggestions as to subjects for experiment, also as to the manner of conducting experiments. Wouldn't it be a good plan to snow him under with suggestions? Out of the lot he ought to get some that would be usable. With such men as Cook and Larrabee at the helm, it's a pretty sure thing that the experimental station will be in close touch with the rank and file of bee-keepers.

NO SWARMING will generally take place, says Dr. Tinker, in *A. B. K.*, "if at the beginning of a honey-flow we take an empty story with foundation starters in the frames, and put on the excluder, then a super of sections for storing, and the brood-chamber of any colony ready to work in the sections on top of all. The queen, of course, is to be put below the excluder in the new story." In 1889 I tried a number of colonies on this plan, but failed. Possibly the season was too poor.

"THE DOUBLE-COLONY" plan, as he calls it, is given by G. W. Demaree in *A. B. K.* In brief it is this: When a colony swarms, remove its queen and put it in a brood-chamber on the old stand, with empty combs, except one comb of honey in which a queen-cell is grafted, on this a queen-excluder, and then a second story with the brood-frames and queen-cells, and then the surplus cases. The queens above will be destroyed before or after hatching, and the young queen below remains reigning. Won't the bees sometimes desert that single cell?

A NEW STUPEFIER is described in *Leipziger Bienenzeitung*. It is kept by supply-dealers, put up in little bottles, and, under the rather inappropriate name of "laughing-gas," consists of solid white crystals the size of coffee grains. Its fumes act like magic in immediately producing apparent death, and, as magically, life is restored, with no trace of effect, except that all memory of the past is gone, allowing change of queen, change of locality, uniting, etc. But disastrous results weeks, and even months afterward, are charged to its account.

GET READY for a big crop. If you're ready for it and it doesn't come, there's no great harm done. If you're not ready and it does come, then there is harm done. You'll get all in a stew right in the middle of harvest, and, instead of being just running over with gratitude for having such a big crop, you'll grumble at the supply-dealers because they don't start your supplies on the road about two hours before you mail your order, snap up your wife when she asks you to stop long enough for dinner, and make yourself such a nuisance generally that you'll want to get away from yourself. Get ready in time.

GENERAL CORRESPONDENCE.

BIOGRAPHICAL.

WHO IS RAMBLER?

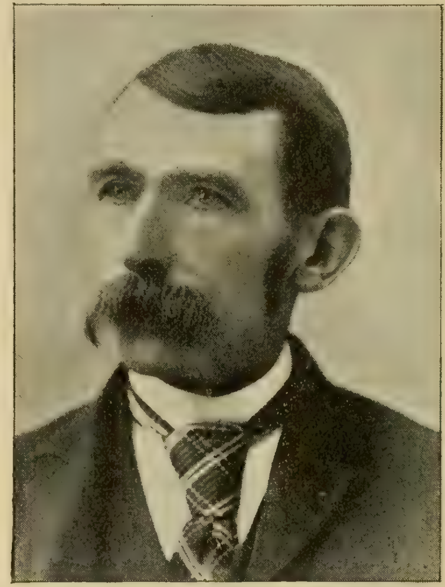
The subject of this sketch was born in the town of Hartford, New York, Dec. 30, 1839. His grandfather came from the State of Massachusetts, and was one of those hardy Puritan pioneers who settled in that region near the close of the last century, and there carved comfortable homes from the virgin forest. He was a man of high native qualities and Yankee shrewdness, and from him John H. seems to have inherited his full share. As John was an only son he was given good educational opportunities, spending some time at a neighboring academy, and at the Fort Edward Collegiate Institute.

In 1868 he married Miss Libbie C. Edwards, who died in 1881, leaving no children. She was an estimable lady, and her death was a great loss to the community.

For many years Mr. Martin followed agricultural pursuits on his father's farm; but owing to a somewhat frail constitution, and the death of his wife, followed, in 1883, by the death of both his parents, he gave up the farm entirely; and bee culture, which had formerly been a side issue, was given all his time and attention.

His grandfather was the first to introduce into that section the Weeks patent hive, which at that time was a great improvement. By observing his grandfather's bees and methods, he early became interested in the bees, and hence he can hardly tell when his career as an apiarist began. As early as 1874 we find him with 55 colonies of bees, and a contributor to GLEANINGS. Since that time his apicultural career has been plainly indexed by his contributions to this paper. Since he has devoted all his time to the bees, it has been his method to keep from 200 to 300 colonies, running them for extracted honey, and doing all the work himself, except during the extracting season. At present his colonies are somewhat reduced, owing to the past successive poor seasons and bad winters. One season his crop was 16,000 lbs. of honey, and his average for the past 12 or 15 years has been about 7000 lbs. of extracted honey per year. Since the advent of the Heddon hive he has adopted it and its methods, and the chaff hives and outdoor wintering are being discarded.

Mr. Martin is a thorough student of the bee, as the many bee-books, old and new, and bound volumes of the bee-periodicals to be found in his bookcase, all show. He is also a superior workman in wood, and very ingenious in the invention and application of apiarian implements. The old homestead, where he now resides with kind friends, is a most beautiful spot. A broad turnpike leads up from the village, and for some distance there are, on either side of the road, rows of thrifty basswoods, planted years ago by Mr. Martin's own hand. The house is a typical Eastern homestead, large and square and white, among venerable maples. Just beyond the house is the apiary with its high lattice fence and arbor of grapevines, while all around are the high hills and broad valleys of an excellent honey location.



THE RAMBLER.

In person Mr. Martin is quite tall and slender; there is not an ounce of spare flesh about him. In manner he is very modest and quiet, yet continually, through his eyes and in his words, one sees the humor of the man. He has great love of the quaint and humorous side of humanity, yet his humor never offends by its coarseness nor galls by its acidity. The series of articles written during the last two years, under the *nom de plume* "Rambler," has made him well known to all the readers of GLEANINGS. His method of combining the entertaining and the instructive in a manner to make it read by all is very characteristic.

Mr. Martin is a true Christian—very zealous in Christian work, and is a leading member and deacon of the Congregational church of his town. He has long served as superintendent of the Sabbath-school; and in all matters pertaining to the spiritual and temporal welfare of the society his influence is felt, and is always on the side of right. JOHN H. LARRABEE.

Ag'l College, Mich., Jan., 1891.

[You have given us an excellent sketch of our "mutual friend," and your next to the last paragraph describes his personality almost exactly. Along on my bicycle tour I was frequently asked, "Who is that Rambler? I like his style, anyhow. But I want to know when that chap is coming around to visit me, so I can kind o' slick up, you know." I was asked so many times about Rambler's identity, that, when I reached Lake George, I told Mr. Martin that it might not be a bad idea for him to let his real name be known, now that we had abundant evidence that his Rambles were appreciated and sought after by thousands of readers. Dr. Mason once said to me, "Ernest, I don't like this *nom-de-plume* business. Now, there is Rambler—a rather nice fellow, I judge, but I should like to know who he is; and when he gives me a 'blackboard exercise' I can give him another in return." Again, at the Albany convention, I think it was Charles Stewart who said to me, "Rambler is John H. Martin, is he not?"

"Yes, sir; how did you know?"

"He referred in one of his letters to his horse 'Nig,' and then I knew his identity at once."

Later.—Rambler is now going to California, and our readers will get the benefit of his western rambles. See his advertisement elsewhere.] E. R.

CONDUCTIVITY OF HIVE-WALLS.

EXPERIMENTS TO ASCERTAIN THE COMPARATIVE RESULTS BETWEEN THEM.

With a view to test the relative conductivity of different hive-walls I recently spent about a week in conducting experiments, and in making preparations for them.

The hives used were eight-frame Langstroth. No. 1 was a single-walled hive, made of scant ⅞-inch lumber, sent to a neighbor as a sample hive from the factory of Mr. Heddon. Nos. 2 and 3 were half an inch wider, and one-eighth inch longer inside. Both of these were double walled, with 1¾ inches for packing. The outer walls were plump ⅜ inch, ship-lapped, and lined with one thickness of building-paper to keep the wind from driving in through the joints. The inside walls were composed of picture-backing, say about $\frac{3}{16}$ inch thick. In No. 2 the walls were firmly packed with cut straw, such as is used for fodder, and in No. 3 they were packed with granulated cork.

The bottoms were removed. In order to cause the cooling to take place as much as possible through the sides, each hive was covered with two cushions of wool tacked down with strips, the cushions weighing together 29 oz. There was a difference of only half an ounce in the weights of the three covers. To prevent the escape of heat as much as possible downward, similar cushions were fastened on the under side of the bottoms.

The first step was to verify my thermometers. I tested five instruments simultaneously, and, as it happened, the variations were so slight that, in experiments of this kind, they might be ignored. When every thing was ready, a tin pail containing 7½ lbs. of boiling water was set on each bottom-board, and the hives set over them. The thermometers were then inserted through slits in the quilts, so that the bulbs extended into the water. After the mercury began to fall in each instrument, readings were recorded every half-hour for ten hours and thirty-five minutes. At the end of that time the temperatures, which at the first reading were 170, 171, and 175°, had dropped to 40, 48, and 58° respectively. It was noticeable, that at first the thermometer indicated higher in the single-walled hive than in either of the others, the heat in the latter being absorbed, I presume, in warming up the thicker walls.

It would, perhaps, be interesting to the reader to be able to examine the record of the readings in detail, but it would take up considerable space.

The outside temperature during the time the readings were taken averaged about 1° below 0. The following figures show the times of cooling down 100°:

Single-walled hive	330 min.
Straw-packed "	450 "
Cork-packed "	459 "

When this experiment was finished, I was not satisfied with the result. The double-walled hives did not stand close on the bottom-boards. I tried to fill up the cracks with oakum; but with a wind blowing, and a zero temperature, a very slight crack would vitiate the result; so I resolved upon another trial.

In the second experiment I fixed up the bottom-boards so that they would hold 2½ inches in depth of dry wood ashes, this being a very good non-conductor of heat. On these beds the hives were placed, and pressed down so that they were comparatively air-tight at the bottom. In this case the bulbs of the instruments were not placed in the water, but extended below the covers about two inches. During this experiment the outside temperature averaged about 10° above 0. The times of cooling down through 65° were as follows:

Single-walled hive	390 min.
Straw-packed "	460 "
Cork-packed "	475 "

In this experiment I found that, having the hives close together, affected their rate of cooling perceptibly, from which we may infer that, by placing hives close to each other in clamps, cellars, etc., they will keep warmer than when a greater distance apart. I thought, too, that, after all, keeping the bulbs in the water gave safer indications of the rate of cooling, so I determined to try it over again once more.

In the third experiment the hives were placed on beds of ashes as before; but I now packed soft wet snow around each hive, and crowded it up against the walls every hour to prevent air-spaces forming. The bulbs of the instruments were placed in the water as in the first case. This experiment I regard as the most reliable of the three. The times of cooling down 75° were as follows:

Single-walled hive	503 min.
Straw-packed "	570 "
Cork-packed "	675 "

When Count Rumford made his elaborate experiments on the conductivity of materials used in clothing, about 100 years ago, his method was this: "A mercurial thermometer was suspended in the axis of a cylindrical glass tube ending with a globe, in such a manner that the center of the bulb of the themometer occupied the center of the globe; the space between the internal surface and the bulb was filled with the substance whose conductive power was to be determined. The instrument was then heated in boiling water, and afterward, being plunged into a freezing mixture of pounded ice and salt, the times of cooling 135° were noted."

My experiments were imperfect in this respect: Although the hives had been kept over night in the kitchen, there was a great difference between their temperature and the temperature of the water placed in them. Owing to the difference in the material and thickness of the walls, the amount of heat absorbed by the walls in each case was not the same. If I could have placed the whole lot in a large oven, so as to heat all the materials to the same degree, as was done in Rumford's experiment, the result obtained would have been more reliable. As it is, however, the experiments give some indications of the comparative warmth of the different hive-walls. S. Corneil.

Lindsay, Ont., Feb. 20.

[Friend C., we are very much obliged indeed for the report of your valuable experiment. I wish, however, you had placed a similar pail of water right outdoors, without any protection; then we could have told just how much any sort of protection amounts to. Another thing, a colony of living bees giving off moisture from their respiration requires a covering somewhat different from that needed to preserve a vessel of hot water or a cake of ice; that is, the arrangement that would hold the heat longest for the brick or the ice would not be exactly what we need for a cluster of living bees. Your experiment demonstrates very clearly, however, the advantage and the protection that chaff and cut straw afford to a colony of bees during severe weather.]

FIXED FRAMES.

AN ILLINOIS MAN DISCUSSES SOME OF THEIR FEATURES; HE CAN HANDLE THEM FASTER THAN THE UNFIXED FRAMES.

Friend Root:—The discussion that has appeared in Gleanings in the last six months in regard to the different frames used in hives should interest every progressive bee-keeper, since Ernest's visit to the East; and he there found a majority of the bee-keepers using a fixed-frame hive. It has aroused an inquiry in the minds of many of the bee-keepers of the South and West: Does the fixed frame possess advantages with which we are unacquainted? and have its disadvantages been exaggerated? The discussion has, I think, disclosed the fact that there are more using a fixed-frame hive than was generally supposed—not from mere choice, but because they were convinced, after trial, that it possessed advantages not found in the hanging or adjustable frame.

I believe it is generally conceded, that, in the fixed-frame hive, there is less burr-comb built than in the hanging frame, especially between the hive and super; that it possesses superior advantages when hives are hauled on wagons to out-apiaries or distant fields to take advantage of honey-flows not existing in their own neighborhoods. The frames being fixed, they are ready to load on the wagon without having to stop and fasten them in the hive by some device, and then unfasten them on arrival at destination.

The disadvantages claimed for the fixed frame are, that they can not be manipulated as fast or as easily as the adjustable frame; but when Ernest saw some of the prominent bee-keepers of the East handle fixed frames easier and faster than he could the loose frame, he was convinced that the disadvantages claimed for it in this direction had been greatly overrated, and so I think.

I have been experimenting with hives for 12 years, having tried most of the different styles that have laid claim to popular favor, being desirous of obtaining the best hive invented. Having tried many of them, I will say that I can handle a fixed-frame hive, invented by Mr. Armstrong, of Jerseyville, Ill., who is now out of the business, with greater ease, and faster, than I can any loose-frame hive that I am acquainted with. But I have settled on a shallow fixed-frame hive, brood-frame 5 inches deep. Two cases filled with these frames make a brood-chamber. Here we have nothing but white clover to depend on for surplus, and it is gathered in from two to five weeks. Now, in order to get through the honey-harvest with as few unfinished sections as possible, we must devise some plan to keep the bees at work in the sections from the time they commence until they are finished; for if we allow them to stop, which they usually do when they swarm, the harvest is likely to be over before the sections are finished. Now, in order not to have the bees stop work in the sections when they swarm, I move away the hive that has swarmed, and in its place I set one case of the shallow hive; put on a queen-excluding honey-board and the supers from the hive that has swarmed; then run the swarm in the new hive. The brood-chamber being so shallow, the bees are forced up into the sections; the work goes on, and the sections are completed without delay. In four or five days the queen-excluding honey-board can be taken off, if desired. The queen will not go above in the sections. If, when the sections are about completed, there is not time to finish another lot, raise up the super and insert, between it and the brood-chamber another section of the brood-chamber, which the bees can proceed to fill for winter stores, or it can be extracted.

While the plan above is not new or original, yet I think it worth repeating, as we sometimes have to read a thing two or three times before we think there is any thing in it.

Delhi, Ill., Feb. 5. H. D. Edwards.

[Yes, it appears that there are more using fixed frames than was generally supposed, and that, too, when most of the books and journals for years have declared against them. Now that the tide is changing, the fixed-frame users will increase greatly, but the loose frame will continue to be used largely yet. See page 224.]

R. F. HOLTERMANN ON A VISIT.

HE CALLS ON MR. ALPAUGH.

A visit to the home and apiary of Jacob Alpaugh, St. Thomas, Ont., could not result in any thing but material gain to an observing bee-keeper. On every hand we find ingenious contrivances to lessen labor, and to do work in a better manner. To assure the readers of Gleanings that these inventions are practical, I need only to mention that they are in use by Mr. Alpaugh and others, and that Mr. A. intends running five apiaries the coming summer, and has at present 370 colonies, 190 of them in the cellar, the remainder wintering on their summer stands. The bees wintered on their summer stands are packed four in a box, two entrances at opposite sides. They are packed with forest-leaves, no packing at the bottom; at the top, a fresh quilt and about eight inches of forest-leaves; the entrance is left open to the extent of about eight inches. A few colonies are being experimented with for the second year, the first having been an entire success. An empty story is placed between the bottom-board and the body of the hive; an entrance is left in each; an eight-inch packing of forest-leaves is put above the body, with bees in it. A new quilt is, of course, put above the bees. No further protection is given to the bees. Of course, we have had several mild winters, and it would hardly be advisable to adopt this plan generally at present.

In order to give the method of cellar wintering, the cellar must here be described. It is 18x11 feet and 6 feet high. The walls have no connection with the outside. The entire cellar is inside of another 30x25-feet wall made of stone 16 in. thick, and with a cement floor, the latter common to all. The inner compartment has for its walls half-thickness brick. The ceiling is boarded with matched lumber against the joists. The air, hot or cold, can, therefore, pass clean over and about the inner repository, all but the floor. Two ventilators pass into the inner cellar. One, 4x8 inches, is attached to a chimney; the other, 4 x 4 inches, passes up through the center of the house. Both generally draw air from the top of the cellar; but by adding a length to the pipes they can be made to draw from the bottom. A door connects the inner repository with the outside cellar. Either wire or solid wood can be used. So far this winter the screen only has been used. The main cellar is further ventilated by means of a door at one side, and on the opposite side a window. The door to the inner repository is between the door and window of the outer, giving a free current to the bees when desired.

There is another compartment which contains a large stove, used as a furnace. From this the air around the inner repository can be heated to any desired temperature. The only difficulty, Mr. Alpaugh says, is when the outside temperature gets too high. The bees are packed almost solid, four tiers high. The bottom tier is about four inches from the floor, and this tier has an inch rim between the body and the bottom-board. The greatest number of colonies ever wintered here was 260, and the temperature has been as high as 60°, seldom as low as 50. No trouble has been found in regard to spring dwindling, and there were not enough dead bees to cover the cellar floor up to the time of my visit, Feb. 7. We raised the quilt of one colony. The bees were as small as in summer, bright and clean. They certainly were not hibernating, however. The 190 colonies made a slight hum, but one could scarcely detect the odor of the bees—a very good indication of a healthy condition. I feel satisfied that the bees go into winter quarters in good condition. Of course, this is a great step toward successful wintering. I have for years felt that Mr. Alpaugh had a very fine cellar for wintering bees; and the only addition I might advise would be a spring of water to assist in keeping down the temperature in spring.

In a future number I propose describing a few of Mr. Alpaugh's inventions in the bee-line; and as your readers may be interested in one or two contrivances about the house, not in connection with bees, I shall take the liberty of briefly describing them, especially as I know you have a weakness for pure water. The cistern, or tank, for soft water stands on the floor of the main cellar. It is 6 ft. in diameter and 6 ft. high. The water is caught from the roof of the house and pours into the top of the tank. The overflow pipe draws the water from the bottom and communicates with the house-drain. A tube connects with the overflow-pipe, just where it bends over the tank. This tube carries all foul air from the drain to the chimney, joining the kitchen stovepipe, I believe. The water in the tank, by means of the above, and being quite open at the top, is pure, and used for drinking, frequently; so, Mr. Root, when you go to Alpaugh's you will find waiting for you soft water as well as a soft bed.

MR. ALPAUGH'S DEVICE FOR DRAWING WATER.

I was attracted in the woodshed by a wire-cloth trap-door covering a box. Asking what it was I found it covered the box upon the well-platform; and immediately above it, and suspended to the rafters of the shed, was a wooden roller with two light ropes attached. I knew Mr. Alpaugh could afford a pump, but I received the following explanation: "I believe that every well should be so arranged that the air has full access to the water. That is why I have the pump out and the pail to dip; also the wire trap-door. The latter allows a constant free circulation; the former takes a certain amount of fresh air to the water every time we dip, and takes it from the surface at all times. We could not use the water when we had the pump in it; but now, as you can see for yourself, it is very good, for surface water." The above contrivance is to make the drawing of water easy. It consists of simply an eighteen-inch roller, half of it two inches in diameter, the other half four inches in diameter. To the latter a rope is attached, long enough to strike the water and allow the attached pail to sink and fill. The pail is galvanized iron. To one side is attached a weight, so that, when the pail strikes the water, the pail is drawn to one side and fills. The pail rights itself the moment the rope pulls on it. To the two-inch roller is attached a cord half the length of the one attached to the 4-inch, and to this is fastened a weight just the weight of the zinc pail when filled with water; when the weight rolls up, the pail goes down; and when the pail comes up, the weight goes down. So it takes a little pull (you can do it with thumb and finger) to bring the pail down and about the same to bring it up. With a proper catch to clasp the bail of the pail, it is a pleasure to draw water. It is fully as easy as pumping, and the frailest woman can work it without much exertion.

When I think of all the places I visit where they draw soft water, and sometimes hard, by means of a rope or a stick attached to the pail, I feel as if you should turn that simple roller, and have it among your household conveniences, for such it assuredly is. It may be old to some, and to many new. R. F. HOLTERMANN.

Romney, Ont., Feb. 16.

GLOVES—WHAT KIND TO USE.

RUBBER GLOVES NOT SUITABLE FOR BEE-WORK. FINGERLESS GLOVES PREFERRED; DRESS FOR LADIES.

Friend Root: — I, for one, have used rubber gloves in the apiary, but I did not like them. They draw, and burn the hands until one can hardly endure it, especially if the weather is very warm; and when you take them off, your hands will look as if you had been washing in hot suds all day. Another thing is, they are so clumsy in handling frames that one is apt to drop one end of the frame on the hive with a jar, and the result is—mad, stinging bees.

I like my fingers uncovered while working in the apiary; but I prefer the backs of my hands covered. As much as I dislike propolis on my fingers, I would rather endure it than to wear rubber gloves. I like fingerless gloves, and I will tell you how I make mine. Take an old pair of stockings; cut the feet off; cut a small piece out of the sides about two inches from the end where you cut the foot off. This is for the thumb. Take a thread and needle and whip the edge over and over, not too tight; next whip over the bottom so it won't stretch so much; then sew it together in three places; that makes four finger-holes; then run a rubber cord in at the top to keep them up on the arms. The gloves keep the bees from crawling up the sleeves; protect the hands from the sun and a little from stings. I will say *a little*, for the bees will sting through them; but do as in the A B C—that is, slap your hand against your person, and you will suffer very little from stings. They are so easily made, and so inexpensive, that, when one pair gets soiled, you can burn them; or, if one chooses, they can be washed and used again.

I think Miss Emma will find bed-ticking aprons too heavy and warm for summer. They will do very well in spring and fall. Last season I used seamless-sack aprons with large pockets sewed on flat made out of Indian-head factory, also faced around, and belt of the same. I liked them very well, as the honey does not leak through them. I found them pretty warm in June and July. This coming season I am going to try a soft pliable kind of table oil cloth. I don't think paper aprons would do, on account of fire from the smoker. The apron and glove part doesn't bother me as much as the head-dress. I don't like veils or wire-screen hoods very well. They are hard on the hair. Still, by wearing a net or a thin muslin cap to protect the hair, I can get along very well with the hood. I wear one made like Mrs. L. Harrison's with a cape and draw-string at the waist. With this kind of a head-dress, and my fingerless gloves, and my long apron, I think my dress is pretty well protected.

Mrs. W. G. Tittsworth.

Avoca, Ia., Feb. 8.

[As practical and as extensive a bee-keeper as W. L. Coggshall uses fingerless gloves. I never wore any thing of the kind; but if I worked with some of those York State hybrids I should certainly want them. Hello! here is another who prefers fingerless gloves. He writes:]

I noticed an article in your journal about buckskin and other gloves, and I beg to offer a suggestion. I use gloves made like mits, covering the hand nicely, and just letting the ends of the fingers protrude. These are home-made, made of white linen or domestics. The reasons for their use are, they are white; they prevent the sun from burning the hands; are nice to use, and, above all, can be frequently washed, and thus kept nice and clean. If those who use gloves will try those made of two thicknesses, as above stated, of linen or domestics, they will find them vastly superior to rubber, and much pleasanter to wear in every way.

Atlanta, Ga. T. E. Hanbury.

A HIVE.

DR. MILLER HAS GONE AND INVENTED A BEE-HIVE.

"Didn't know I'd been studying up a hive?" Well, now, you listen. It's to "fill a long-felt want." Some people want a hive that is just right for cellar wintering—a single wall, with nothing inside but the frames—precisely the one I'm talking about. Some want a hive with a dead-air space, light enough to be easily handled. Mine's just that. You see, it hits everybody. It's an A 1 affair. I first called it "*The A1 Hive;*" but the "1" seemed so small a number I left that out, and I thought the name still pretty long, and so I dropped the "*The*," leaving the name, "A hive," and then I changed the big "A" to a little "a," so that, when anybody ordered a hive without mentioning any particular name, the supply-dealers would be sure to send mine.

It's a summer and winter hive. I'll tell you about it. An outside body just like the Dovetailed; inside of that, the frames. These are closed-end, the top-bar being closed at each end like the Hoffman. A dummy, or follower, is wedged up against each outside frame. That's for a summer hive.

For a winter hive I have invented a stick in manner and form as set forth, of just such size and proportions as to fit in the spaces between the top-bars. When the harvest is over, these sticks are put in. You will now see that we have a dead-air space all around. At each end of the hive there is a space between the closed ends and the wall of the hive. At each side there is a space between the dummy and the side of the hive. After the sticks are put in, the bees will glue every thing air-tight, leaving a dead-air space between top-bar and cover.

Now, don't you see that here is a hive, warm, light, good for any season of the year? What? "Nothing original" about it? That's just like A. I. Root. Lie awake nights thinking up a big thing, only to be told it's "nothing original." Well, anyhow I'd like to know who invented those sticks in manner and form as hereinbefore specified.

LAYING WORKERS.

G. B. Replogle has given me his plan of getting rid of laying workers. It is based on the fact that, in a hive containing laying workers, the bees are all old enough to know the way to their hives, no matter where they are put. So, after getting the bees of such a colony to fill themselves with honey, he shakes them down in front of a colony containing a laying queen. Being filled, they are received all right; but on their first flight they will return to their old location, where a caged queen may be given them. The laying worker or workers will not fly out, but will be killed. The plan is ingenious, and I don't see why it won't work. I should think some of the bees, at least, would be so much better pleased with their new quarters that they would mark their location on their first flight, and not return to the old place. But there would be no great harm in that.

FIXED FRAMES AND CLOSED ENDS.

The matter of fixed frames and closed-end frames has been pretty thoroughly discussed; but some of us old fogies are a little anxious yet, for fear we shall be driven with the current into some place we don't want to go. There is no question as to the desirability of having frames always fastened in the hives, if we can have the advantages with no accompanying disadvantages. The prominent question that comes up in my mind is this: "Can frames that touch together throughout the whole or a part of their end-bars be handled as rapidly without killing bees?" We are asked to believe that we can, and yet—and yet. Does it look reasonable? Of course, I have confidence in the word of those who say they can; but, have they tried fairly both ways? I may be asked why I didn't try both last summer. I did intend to, but failed to get the frames made at either of two principal establishments to which I applied, and had not time to make any myself. I am not a good hand to make experiments, for in the busy season I am worked to the limit of my time and strength, with little time for any thing but straight work.

Assure me that fixed closed-end frames are not bee-killers, and I think I am "fixed." But if the Hoffman frame, with the end-bars touching part way, kills no bees, why not go the whole figure and have the frames come together everywhere except that part of the top-bars which is directly over the comb? That would allow no bees to get on the outside part of the frames unless they entered at the bottom of the frame-ends. In that case it seems to me there would be no glue on the outside of the frames unless at the bottom of the end-bars.

On page 87, G. F. Robbins asks that there be only $\frac{3}{32}$ of an inch play between the end-bars and the end of the hive, and E. R. replies, "No, it would not do to leave the usual ¼ inch between the closed ends and the end of the hive." You may be right, but please tell us why. With any thing less than ¼ inch you can count for a certainty on having the lower ends of the end-bars thoroughly glued to the hive.

In days gone by, the insuperable objection supposed to be against fixed distances was that combs were not all alike, and fixed distances would thoroughly prevent interchanging. A. E. Woodward brings up the same objection as the result of experience (page 96). I must confess I don't now believe there's much in it. How much advantage do the loose hanging frames really have? How much difference do we make for inequalities of combs? I must own that I don't pay any attention to them, and I doubt whether others do. I try to space the top-bars equally; and if I succeed perfectly in my endeavor, they are spaced precisely as they would be with Hoffman or closed frames. The only difference would be, that, with such frames, I could do easily and quickly what I can do only imperfectly with loose frames, even after spending much time at it. C. C. MILLER.

Marengo, Ill.

[Well, doctor, I have been studying your hive pretty carefully, and for the life of me I can not tell whether you are in earnest or whether you half mean what you say. There are some good things about your hive, fooling or no fooling. I know it is cruel to say so, but this method of plugging up the spaces between the top-bars with suitable sticks was suggested by some brother a year or two ago in GLEANINGS; and, if I remember correctly, he has put the thing in practice, and says it is all O. K. But, doctor, there is a better way than that. Throw away the sticks, and lay an enamel cloth on the frames, and the bees will seal it down tight, and you will have your dead-air spaces and all—see?

The reason we do not want a bee-space back of the closed ends, or, rather, between the closed ends and the end of the hive, is to prevent the bees from getting *behind* and propolizing in the cracks on the *back* of the uprights, etc. You see, if these uprights are thick enough to fill up this space, and yet leave sufficient play to be readily removable, the bees can propolize them where they come in contact on *the inside only*, and you will see this would make quite a difference in their mobility.

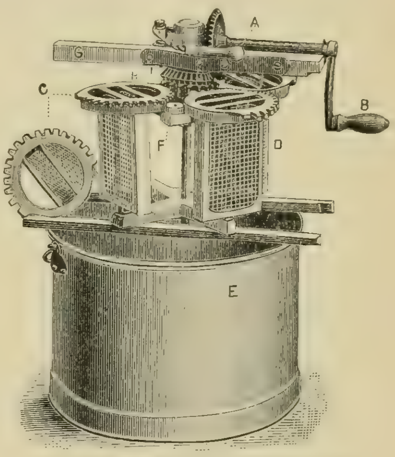
As to fixed frames not being interchangeable, there are only two that I know of who have urged this as an objection. I questioned very closely the York State bee-keepers—prominently, Elwood and Hoffman—on this very point; viz., whether fixed distances prevent the frames from being alternated or interchanged from one part of the brood-nest to the other. They hardly knew what I meant; and when I questioned them further they said they had experienced no such trouble. Closed-end frames on the Quinby plan will not kill bees—in fact, not as much so as ordinary loose hanging frames in wood rabbets. I know some of you will be somewhat surprised, but nevertheless this is a fact. Mr. Elwood will shortly explain *why* this is so, in an article, and so I will not attempt to explain.

With the Hoffman frames there will be killing of bees if there be careless or unskillful handling. But Mr. H. himself avoids the trouble, and I think the rest of us can. You know that, when we put a flat cover on a hive, we kill bees if we set it flat down on the square edges of the hive; but with a *sliding* motion, in the hands of those who use that cover, there is not the least excuse for killing bees; and the same thing is true, to a very great extent, in handling the Hoffman frame.] E. R. R.

REVERSIBLE EXTRACTOR.

ANOTHER MACHINE.

As per request, I send you a photograph showing my improvement in automatic reversible honey-extractors, taken from a rough model of my own construction. It will be seen that the mechanism is such that reversing the motion will reverse all the comb-baskets, with positive action. The comb-baskets stand and reverse on a pivot at the center of their bottom end, the top end being held in position and reversed by metal rings having cogs half way or more on and around their outer surface, with large or stop cogs at each terminus of cogs. The rings have a flange all the way around from the base of the cogs downward, which work against anti-friction rollers, as at F on the end of the arms which hold the rings in position. The rings are secured to the comb-baskets in such a way as not to interfere with this flange working on the guide.



LAWSON'S REVERSIBLE EXTRACTOR.

The cog pinions are fastened together and driven by the beveled wheel from the crank, and revolve loosely on the shaft—the lower one, or spur pinion, working in the cogs of the rings, and, when in contact with the large or stop cogs, set the extractor in motion. The comb-baskets with rings can be instantly removed from the machine for cleaning, and just as quickly returned to position. The brake A is very powerful, and will stop the machine almost instantly. It is composed of a drum secured to the top of the main shaft, and encircled with a strap secured to the cross-bar, and tightened with a lever.

This machine is not mere fancy theory, as I have done all my extracting the past season with one of about the same construction, and I can truly say it gave me entire satisfaction, and, in my humble opinion, is the extractor of the future. ALLEN J. LAWSON.

Brighton, Ont., Feb. 3.

[We at first did not see how the rings at the top of the basket were held in position so as to mesh into the gear of the driving-shaft; but we notice the little rollers you speak of as F in the ent. and we have no doubt they will hold the rings in position. Your extractor offers facilities for putting in and taking out the combs, and the action of the reversing would be positive and certain. The extractor will work, no doubt; but we are inclined to think the expense of manufacture would preclude its general use among bee-keepers. So much gearing is expensive; and, besides, the can will be large.]

WAX SECRETION.

DO CIRCUMSTANCES OR THE BEES GOVERN THE SECRETION OF WAX SCALES? ARE THEY EVER WASTED?

Many writers for our bee-journals, and some of them our most cautious and able bee-keepers, take the position that bees have to secrete wax, and that if comb or foundation is used the wax is lost. But, is it true that bees have to secrete wax? I greatly doubt it. Nature has not arranged things that way. The cow secretes milk when there is a young calf that must have milk. When the bees need wax to form comb, then we find wax scales in the wax-pockets, otherwise we do not find them. I feel quite certain of this. I have hived swarms on combs, on foundation, and on frames with neither comb nor foundation. In the first two cases the bees would be very active, and it would be very difficult to find any wax scales. In the other case, most of the bees were very quiet, and almost every one would have wax scales in the wax-pockets. Even those flying out would show the scales. Now, if, as some contend, the bees in the first cases had to, and did, secrete the wax, where were the scales? I could find no signs of them, and do not believe they had any existence. In case of using foundation in brood-chamber and in supers, I have often had great difficulty in finding a bee with the wax scales to show my class; but, once hive a swarm in an entirely empty hive, and how soon we could find the scales! Indeed, it was hard to find a bee without them. It is hard to explain just how the bees regulate this matter. I have thought it was through activity. If very active, no scales are secreted; if quiet, or active to only a limited extent, then wax secretion was active. When we work mares hard, the young foals get too little milk. The mares can not secrete a full supply of milk, and work hard at the same time. Is it not quite possible that the same is true of bees? When they need comb, they hang quiet in graceful festoons from the top of the hive, and wax secretion goes on rapidly; and the material for the beautiful combs is abundant. When no comb is needed, true to their instinct they hie forth to gather sweet, and wax secretion is nearly or quite suspended. This hypothesis is not without support from analogy. The wax is much like our fat or adipose tissue. We know that it is the sedentary men that become rotund, while our Cassiuses—the lean and hungry men—are generally active. This fact does not necessarily prove that it is wise and profitable to buy and use foundation. Whether foundation is profitable or not, must be determined by actual trial; but that we should desist from its use to save wax scales that else will be secreted and lost, I think is not proved. I think a little close observation will convince any one that bees secrete wax only when, in the economy of the hive, they need it. A. J. COOK.

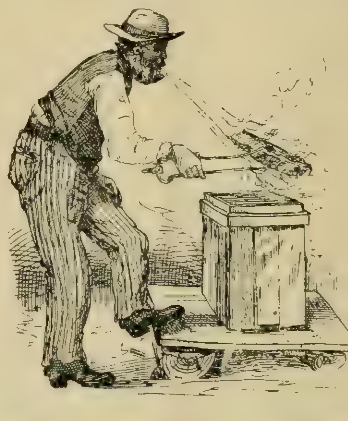
Agricultural College, Mich.

[Friend C., I am very glad you have brought up just this point. I once thought just as you state it; but other things have tended to change my opinion somewhat. For instance, where we feed a colony of bees tremendously with sugar syrup, if feeding is kept up for a sufficient number of days wax scales will form in great numbers; and if they are not permitted to build comb, these beautiful pearly scales of wax will fall on the bottom-board in great quantities. You know I once fed a single colony all the syrup that a barrel of sugar would make; as I wanted them to fill and seal over some combs to give to other colonies, they were not permitted to build comb at all, except capping cells. Well, the great difficulty in the way of the success of this experiment was, that so much syrup was consumed in the secretion of wax—wax that fell to the bottom-board—a good deal of it in the form of wax scales. In hiving new swarms on a full set of finished combs (or two full sets, if you choose) we did not find very many scales on the bottom; but the bees filled up all the corners, and built bits of wax all through the corners and crannies of the hives, and put considerable quantities of wax on the top of the frames. As this matter is one of great importance, I hope that we may have more suggestions on the subject. Although we have foundation to *sell*, my opinion is, and has been for a long time, that, where the brood-combs and honey-boxes are all filled with foundation, more or less wax is lost. I hope you are right, but I fear you are not wholly so in your conclusions.] A. I. R.

RAMBLE NO. 39.

IN MASSACHUSETTS AND CONNECTICUT.

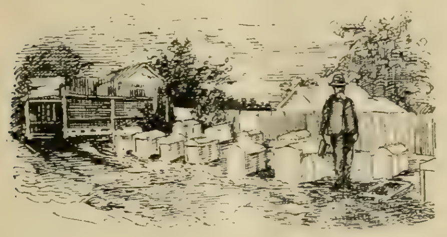
After a few changes on the many lines of railroad in this portion of Massachusetts I arrived in Georgetown just as the shades of evening were falling. Here I met an ex-pastor of our little Congregational church at home, and who had given us the words of life for several years. This brother was anxious to hear all about our home prosperity. The doubling of our church-membership through a long-hoped-for and prayed-for revival, and the building of a beautiful new church, were all precious things for him to hear. Our talk was necessarily brief upon bee-matters, as the only acquaintance our friend had with bees was through a brother-minister who had lately taken up bee-keeping as a recreation; and my clerical friend was quite elated over the fact that this brother, after studying up on bee-matters, went out among the farmer bee-keepers and told them more about bees than they ever knew before.



THE SCOTCHMAN AND HIS SMOKER.

"Why," said he, "it is astonishing how ignorant some people are of the common every-day companions of their lives. To illustrate," said he, "a Scotchman in a remote county had never heard of a smoker, and to subdue bees he carried a billet of wool from the stove with the tongs, and wafted it over the hive; and he believed that each drone laid an egg, and then sat on it till it hatched!" The idea was somewhat peculiar, but as I had come across such an idea before in my travels, I was not over and above surprised at it. It was a pleasure for me to talk with this clerical friend, for his moments of converse were packed with valuable information.

But, again the feet of the Rambler sought pastures new; and as the shades of another night enveloped the earth he was over 100 miles away, and in the land of steady habits and —wooden nutmegs! The town of Southington, Ct., charmed me for two days. Several years ago I visited this town and found it a growing manufacturing village. This time it had been incorporated into a borough, and the reason for its growth I could readily comprehend, as I frequently stumbled through a shoal of baby-carriages. I have no doubt this will soon be a large city.



JOSHUA BILLS AND HIS APIARY.

In this lively borough I found a live bee-man, Mr. Joshua Bills. To make all of his spare time useful, Mr. Bills is proprietor of a store for books and stationery; conducts the telephone office, and is also collector of the water-tax. He is connected with several other items too numerous to mention. Mr. B. has a pretty apiary of 21 colonies in Root and Falconer chaff hives. The average honey-yield in this locality is about 50 lbs. per colony; and at the time of my call, the bees were at work upon a flower of the aster family. The home market consumed all of his surplus. The aforesaid babies were rapid consumers of sweets, another evidence that Southington is to be a large city. Mr. B. has but little competition. His most extensive rival, Mr. Holt, lives out several miles in the country, and is a veritable Huber, as he is a blind man; but for all that he is quite successful, being aided, where eyes are needed, by Miss Holt.

The prosperity of Southington is derived from iron-rolling mills, bolt and nut shops, manufactories of novelties, cutlery, including the Yankee boys' jack-knife, Britannia ware of many beautiful designs, and common screws. While in Providence, Mr. Miller and the Rambler were denied admittance into the extensive works there located; but here, after passing the ordeal of a few questions, George (that's my brother-in-law) and I were allowed to pass, and entered a very noisy room where over a hundred machines were working (or, rather, biting) wire from large coils, and turning it out into screws of various sizes. The work is all done by automatic machinery. The little flat-headed pieces are picked up by steel fingers, chucked, and the screw-thread cut. They are then dropped into a box complete, and in an incredibly short time. All the workmen have to do is to change boxes or fill the hoppers when the automatic fingers seize the pieces. And now when I drive a screw home with the screw-driver, I think of the wonderful machine that made it, and am thankful for the genius that has given us so many useful things which are made so rapid and at such small cost. Wonderful are the days in which we live!

RAMBLER.

THE MILLIONAIRES OF AMERICA.

ARE OUR RICH MEN, AS A RULE, WICKED MEN?

Brother Root:—I have just read Alvin L. Potter's letter in Feb. 1st GLEANINGS; and I must confess that, when I read what you had to say in the December issue, I felt somewhat as Mr. Potter has expressed himself; but "charity suffereth long, and is kind;" and I believe you want to do what is right; but it appears to me you are not posted in that line; and Dr. A. B. Mason, I think, is a little off too. I should like to quote you a few passages of Scripture: Psalm 37:16: "A little that a righteous man hath is better than the riches of many wicked." Are not the rich nearly always wicked men? Prov. 30:8: "Give me neither poverty nor riches." The Wise Man thinks it not best to be rich. Dr. Mason does. Solomon says, "Labor not to be rich."—Prov. 23:4. "Deceitfulness of riches choke the word."—Mark 4:19. "How hardly shall they that have riches enter the kingdom of God."—Mark 10:23. Then why wish for more millionaires? "Woe unto you that are rich."—Luke 6:24. "Woe unto you lawyers also, for ye lade men with burdens grievous to be borne, and ye touch not the burden with one of your fingers"—Luke 11:48. Are not our legislative halls full of lawyers? and are not many of them worth their millions? I claim that no man has ever *earned* an honest million. If that is so, how is it possible for this country to prosper, and the people be happy and out of poverty, when we have so many rich men? Why, John D. Rockefeller is worth 135 millions; W. W. Astor, 120; Cornelius Vanderbilt, 90; Jay Gould, 75; Henry M. Flagler, 60; Charles Pratt, 55; Wm. K. Vanderbilt, 50; John H. Flagler, 40; Fred W. Vanderbilt, George Vanderbilt, William Astor, and Louis C. Tiffany, are worth 35 millions each; and I have the list of hundreds more, running down to three millions each. G. F. HESELTON.

Homeland, Mo., Feb. 3.

[Dear brother, the figures you give us, if they are indeed true, seem to indicate, I admit, that there is something wrong. But let us remember that, besides the good texts you quote from the Scriptures, there is another one that says, "Why beholdest thou the mote that is in thy brother's eye, and considerest not the beam that is in thine own eye?" Please bear with me if I suggest that there is danger—yes, very great danger—of a bad spirit getting into *our* hearts also, when we undertake to discuss these matters. When we get to feeling bitter and envious toward the millionaires, we are certainly in the wrong, whether they are or not. Now, it seems to me your mistake is in your *sweeping* assertions. You claim that no man has ever *earned* an honest million. Please bear in mind, dear brother, that George Muller, one of the grandest missionaries the world has ever known, and a home missionary at that, handles money by the millions of dollars. In fact, the Bank of England has said, if I am not mistaken, that they would honor a draft with his name to it, for a million of dollars. Surely you do not mean to say that *he* is a wicked man. This vast sum of money that he controls has been given into his hands in answer to prayer, and his life and work have been before the world almost like a modern miracle. I admit that this is not quite a parallel case, for in one sense Muller is a poor man. He uses this property for the benefit of the orphans and destitute of the great city of London. Now, is it not possible that some of these men of property you mention are using their property in a like way? Ernest just informs me that our schools of learning—our colleges and seminaries—were, many of them, founded, and now kept going, by our millionaires. In regard to your Bible texts, if you will consult your pastor or our doctors of theology, and the commentaries, they will tell you that the word "rich" in a scriptural sense refers to those who lead a life of selfishness and ease; so in reality the word describes the *way* a man lives, rather than his standing at the banks. We all respect and honor a man whose word and signature are as good as gold; but we as a people do not respect nor honor him who looks with disdain upon the workingmen of our land, especially those who work with muscle as well as brain. Let us work and pray that our rich men may become Christians, and the spirit of Jesus Christ will manage the money matters.

You err, friend H., in assuming that money must be *earned* in order to be honestly owned. Some years ago a babe was born in Hoboken, N. J., and he was worth $40,000,000 before he could use a cent. That money founded the Stevens Institute of Technology in Hoboken—one of the grandest institutions in this or any other land. Grand old Peter Cooper was worth millions over and over; and yet every workingman in New York loved him as he did his father. When he drove along Broadway, by general consent the teamsters made way to let the old philanthropist pass by in his plain old shay. Why? Because he gave to the people of the world the celebrated Cooper Institute in New York, where free instruction is given in all the arts and sciences. George Peabody gave $17,500,000 to the poor of London, to improve their homes. Vanderbilt gave half a million to the Fisk University, of Nashville, Tenn. Space would fail us if we were to tell all the good things that rich men have done for mankind. Certainly, God designs money to move in large masses, just as he collects the water in lakes and seas. What would the world be if the water were all equally divided?

You ask, "Are not our legislative halls full of lawyers? Perhaps you do not mean to reflect on the lawyers of the present day. The class in the text you quote certainly does not mean lawyers as we know them at the present time. Please remember that our fathers, sons, husbands, brothers, are lawyers; and to condemn them in toto would be as unjust and unkind as to say that the grocers of our land are all rascals. Since I have been on the school-board of our town I have become acquainted with more or less of our lawyers, because we always find it wise to have at least one lawyer on the board; and I have learned to respect them and to look up to them as I have never done before. As a rule, they urge people not to go into law; and several times I have seen them give their time gratis to point out to farmers, and other classes of people uneducated in law, the folly and injustice of the thing they had in mind. We know there are many of them who are not Christians, and we lament it; yet I have known even these to give advice that was very much in line with what we might expect from the pastors of our churches. If we have the right kind of love toward our neighbors we certainly shall not be in *haste* to decide they are rascals, even if they do happen to be lawyers.

Now, dear friends, had we not best let this matter drop right here? I admit that I am not posted, and that I am unable to handle politics and finance; but I do feel that it is in my province to say that these troubles, like all others that threaten our land of liberty, are to be remedied in the line of the text, "Not by might nor by power, but by my Spirit, saith the Lord of hosts."]

THE REASON WHY.

A PLEA FOR THE CROSSWISE L. FRAME; A GOOD-NATURED SCORING OF SUPPLY-DEALERS; WANT CLOSED-END FRAMES.

Mr. Editor:—While the hive and frame question is one main topic at present in GLEANINGS, and everybody is talking, will you allow me to say my piece, as I see you sometimes allow contrary people to talk? Why is it, that, when you were getting up a new hive (the Dovetailed), you didn't embrace one more change, and thus make it a perfect hive—that is, a change in the frame, and make it to run crosswise of the ten-frame hive, instead of lengthwise? After testing almost all of the sizes and styles of frames in use, and for many years, I am fully persuaded that the regular ten-frame Langstroth hive, with the frames crosswise, has more good features than any other hive I know of. I know, too, that many will "kick" at this idea. Why? Because they are not the standard frame. But, hold! Why is the Langstroth the standard frame? Because it started first; and after the patent expired, supply-dealers and hive-makers went to making and selling them, and each dealer began advertising and puffing their superiority over other makes. Editors of bee-journals puffed them. Why? Because they were supply-dealers, and it was to their interest to do so. Bee-keepers fell into line, and began buying and using them. Why? Because the bee-journals say they are the best. Soon the bee-keepers who had never used any other frame began writing for the journals on the superiority of the Langstroth frame over all others; then, when a standard frame is talked of, it must be the Langstroth. Why? Because there is most of that kind in use, and all the fixtures, such as supers, foundation, sections, etc., are for that sized hive. Why, bless you, nothing would have to be changed but the frame, in length, that's all; and the many conveniences gained would repay for doing that. Some of the points gained would be, no sagging, no wiring needed, combs not so liable to break in handling or extracting; straight combs; easier to contract by a division-board for weak colonies in spring. With a division-board in the center, it is in the best shape possible for two nuclei in a hive. Combs will not break in hauling to and from out-apiaries; are much nicer and easier for lady bee-keepers to handle; much better for starting nuclei with few bees. While the capacity for bees, brood, sections, and comb surface will be exactly the same as in the ten-frame Langstroth. I use wide frames for sections, and a frame this size holds just six 4¼x4¼ sections; or, by putting two brood-frames together, I have a wide frame, and it is much easier to get sections out than if it were one solid wide frame; then, when it is empty, I can use them for combs. But now I am making my frames closed-end, and they will not do for sections.

Mr. Editor, I was a little amused when reading your foot-note in answer to friend E. J. Baird's question on this subject, page 453, 1890:

"I do not know of anybody now who uses them to any extent. The only objection is, they are out of the beaten track." Why are they out of the beaten track, and not in general use, or not the standard? Simply because supply-dealers and bee-journals don't puff them, that's all. I can count at least ten bee-keepers who do use them, and like them too, and scores who would use them exclusively if they were advertised for sale. I have at present 50 colonies on Langstroth combs, and 125 on the crosswise frame. I know, by years of practice with both sizes of frames, which is best for all purposes, and I wish you had introduced your new hive with the crosswise closed-end or Hoffman frame, and break away from the beaten track for something better.

This is an age of improvements, you know. Ernest speaks favorably of Mr. Manum's frames not sagging. Not half of the large honey-producers here in the basswood region of Wisconsin use the long Langstroth frame; and Wisconsin, you know, comes to the front in honey production.

I could say much more in favor of adopting the crosswise Langstroth frame, and also show indisputable reasons why the long frame is not as good. I have no ax to grind. I am only a practical bee-keeper, and not a supply-dealer or hive-maker, except for my own use. But, let us still be progressive in hives as well as in all else pertaining to bee culture.

Orion, Wis., Feb. 23. W. T. STEWART.

[I wish there were more contrary people who would speak out their mind as good naturedly as you do. You have given us some excellent reasons why the L. frame is the standard; but you have not named them all. No doubt, for your locality and other places of a similar nature, the crosswise L. frame is better; but don't forget that localities differ. I know, that is, I think, there are places where the Quinby frame gives better results. I am also of the opinion that the fixed frames are adapted for most localities, but there are some places where they would not answer as well as the loose frame. There is a good deal of twaddle about localities making a difference in results; but when we come to talk about the size of frames, there is some sense about it.

Father Langstroth, years ago, experimented with a great many different sizes, and finally settled upon one in use by bee-keepers generally. The trouble with the crosswise frame is, that it does not hold comb enough to suit most bee-keepers. We want a comb not too deep, but one that gives plenty of brood-rearing surface, and that we get in the L. size.

With your crosswise frame you are obliged to handle 13 instead of 10, as in an ordinary ten-frame Langstroth body. There is quite a little difference you see.

One great reason why the L. frame is so generally accepted is because it is a compromise between the very shallow and very deep frames, and because, for most localities and most bee-keepers, it gives good results.

You overlook one very important fact. If the time has not already come it has almost, when over half of the hives in use will be eight-frame instead of ten-frame; so that the eight-frame people could not use the crosswise, even if they chose to do so; that is, the crosswise, if used at all, would have to be shortened —then what? there would be another frame.

Still another thing: We have had scores of testimonials to the effect that bees would gather about as much honey, and do about as well on the L. size as on any other, and that with comparative tests. But there are exceptions to all rules. In this case, take, for instance, that of the Dadants. Instead of using a *smaller* frame than the Langstroth, they want a larger one—the Quinby. And they say they have made comparative tests to prove the superiority of the larger frame. Now you call for a *smaller* one. Don't you think that the L. frame is a very nice compromise between the extremes, for most people?

You say no wiring is needed for crosswise frames. There are very few who will agree with you on this point; that is, those who have tried wiring and not wiring. A crosswise frame needs wiring, else why do so many use wire for square frames? It is true, that a *shorter* top-bar would be less liable to sag, but we compensate for that in the longer L. by making them ⅝ thick now.

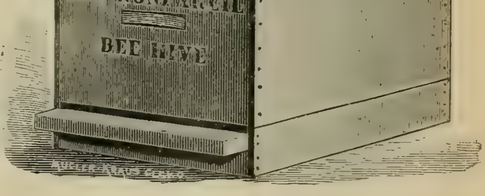
Perhaps two-thirds of those using other than the L. frames would be glad to use a standard size if they could make the change without expense. Why? Because, from the few comparative tests they have made they get just as good results from one frame as another.

I do not overlook the fact that you represent your own locality. You want a smaller frame. The Dadants represent their locality, and they want a larger frame. The fact can not be denied, that bee-keepers ought to have a standard, and that that standard ought to be the one that *most* bee-keepers will agree upon, and that is the Langstroth frame. The standard in England is the crosswise L., or very nearly that; but that is not this country. I think I can join hands with you in regard to the closed-ends; but when you advise changing the size of the standard, you will encounter a bigger job than you think for.] E. R. R.

THE NONPAREIL BEE-HIVE.

DR. TINKER EXPLAINS HIS HIVE.

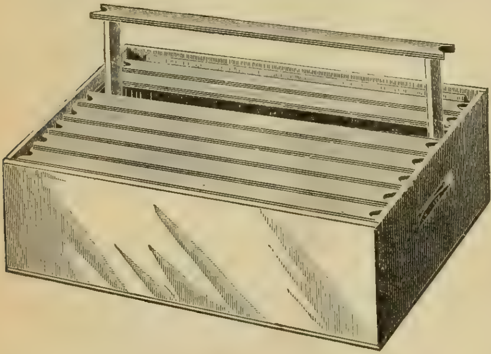
The engraving for the accompanying illustration was made four years ago, since which time the cover of the hive has been improved by making a square framework, similar to that of the Simplicity hive, and covered with sheet roofing steel, made here in New Philadelphia. An improved clasp of malleable iron, similar to the Van Deusen clamp, has been made to secure the removable side of the section super. Otherwise, the hive as now made is the same as the original. Where the hive is to be set into a winter case in the fall for winter, a very cheap cover and bottom for temporary use has been devised for all increase during the working season. In this locality, and further south, the hive in two stories will winter as safely as in



box-hives, but at a loss in stores sufficient to pay for a winter case in a few years. When the hive is placed in the latter, the safety of wintering, with proper care and good packing, is insured in our longest and coldest winters. The results of wintering in these hives have also shown that there is far less danger of dysentery when the two-story hive and winter case is used than in any other style of hive now made. At least, several tests in the same apiaries upon the same stores have shown complete immunity from disease when the bees in other hives like the American, the Simplicity, chaff, and several other kinds of hives, some of which were at least three times as large as the Nonpareil winter case, either all died or were so greatly reduced in numbers by dysentery that the colonies built up too late to get a crop of honey. In all of these instances the great difference in results seemed wholly due to the greater depth of the two-story hive, or to the free passageway between the stories.

THE NONPAREIL BROOD-CHAMBER.

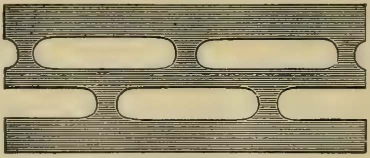
The chief feature of this hive is the size and shape of the brood-chamber. It will be noticed that it is a very plain and cheaply made storifying Langstroth brood-chamber, with a quarter-inch bee-space at the top above the brood-frames, and an eighth-inch space at the bottom below the frames. It contains eight Langstroth brood-frames, notched at the ends of the top-bars, similar to the metal-cornered Simplicity frames, the size being 17 inches long by 7 inches deep, outside measure. The top-bar is 18⅜ inches long, ⅜ thick, and one inch wide. The end-bars are 6⅜ inches long by ⅜ thick, by one inch wide; and the bottom-bar is 17 inches long, ¾ inch wide, and ¼ thick. To each of these frames we now attach a spacer, made on the principle of the Van Deusen frame-spacers. They fix the frames without destroying the movable function of the Langstroth brood-frames. The brood-chamber is 19⅛ inches long, 12½ inches wide, and 7⅜ inches deep. The inside measure is 17⅜ inches long by 11¼ wide.



THE NONPAREIL BROOD-CHAMBER.

Owing to the small capacity of this brood-chamber, which contains 830 square inches of brood comb (and after making allowance for bee passageways at the ends and bottom of the combs, not ordinarily over 800 square inches), it is impracticable in the production of comb honey without a queen-excluder. The latter is the wood-zinc combination, the strips of zinc being ¾ in. wide, and two-rowed, as in the cut.

The perforations are about ¾ inch long, so that the excluder contains about 300 of these perforations, which seem to be essential to the ready ripening of the stores in supers. The framework of the excluder is made of half-inch stuff, rabbeted to receive the slats, which are ⅞ inch wide by $\frac{3}{16}$ thick. The queen-excluder for this hive is made with continuous passageways; that is, the zinc is placed in the framework so as to come over the spaces between the combs. The break-joint queen-excluder is a disadvantage; and when the stories of the hive are piled up above 24 inches high it becomes a serious disadvantage. As the system of management with the continuous-passageway queen-excluder almost entirely obviates all burr-combs, it will be seen that the break-joint queen-excluder can have no merit on this hive.



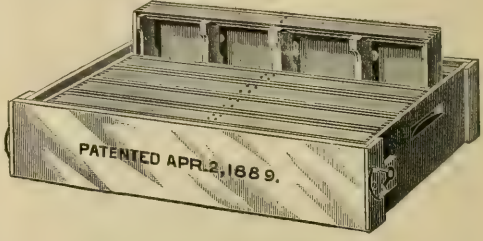
TINKER'S PERFORATED ZINC.

THE NONPAREIL SECTION SUPER.

This consists of a case with a removable side, containing 6 wide frames holding 4 sections in each. The frames are made with a center-bar to prevent sagging, of the same shape as the sides of the open-side sections. The five separators are made of wood, and perforated. They are $\frac{1}{16}$ thick, and 4⅝ inches wide, and are placed loosely in the case, so that any one of the frames of sections can be taken out, and the bees be readily shaken off, which can not be done where the separators are nailed fast to the wide frames. As the separators come down to the bottom of the sections they entirely prevent the attachment of the combs in the sections to them. They are not only cheaper than tin, but are, on account of the less liability to the attachment of the combs, greatly superior to tin. They are also, when sawed, more durable than tin, lasting an indefinite time. The cut of section super shows the improved malleable-iron clasp.

THE WINTER CASE.

This is made of very thin stuff, a little less than $\frac{5}{16}$ of an inch thick, making the case very light and easy to handle, weighing not far from 25 lbs. The sides of the case are 22 inches long, and are nailed to the framework at the top and bottom, so as to stand upright, making the case both waterproof and very durable. The bottom of the case is made of the same thin stuff, as also a part of the cover. The framework of the bottom is 3 inches wide by one inch thick, the two side pieces being rabbeted to receive the thin stuff for the bottom. Two braces are nailed into the framework at the bottom, to prevent sagging when a great weight of honey is in the hive. The entrance is ⅜ by 11 inches, and is in a line with the bottom, so that any refuse, in wintering, may be raked out. However, we have never found it necessary to do so, as the bees will do it cheaper than we can.


PATENTED APR. 2, 1889.

THE NONPAREIL SECTION SUPER.

A block 1½ inches thick, and wide enough to support a queen-trap, is nailed to the lower framework at the entrance, and a portico is attached above to keep off rain and snow. The top-frame is made of ¾-inch stuff, 1¼ inches wide. The cover is a frame made of ⅝-inch boards, 2½ inches wide, like a picture-frame, and rabbeted on the inner top at the sides to receive the thin stuff to support the roofing tin or sheet steel, whichever may be used. The size of the case is such that a sheet of 20 x 28 roofing tin will cover it and leave room to lap over the sides so it may be securely nailed. Thus this winter case combines a bottom and cover complete in itself, and is preferred with the bottom attached solid to prevent the effects of dampness from the ground and rain, which is sure to affect the bees more or less where the bottom is not made fast.

The management of this hive for comb honey will be the subject for another article.

New Philadelphia, O. Dr. G. L. Tinker.

FOUL BROOD.

HOW TO TELL WHETHER COMBS HAVE BEEN INFECTED.

[Read at the Michigan State Convention at Detroit.]

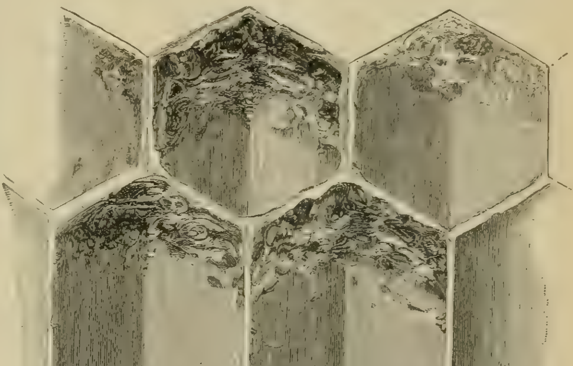
Though I discussed the subject of foul brood at our last annual meeting, I have, at the request of our secretary, prepared a sort of supplemental paper on the same subject; and, first, I shall add a further word to aid in the identification of the malady. Enough has been written about sunken and perforated capping, and the color and viscid character of the brood recently dead of the disease. In the case of weak colonies generally, and of all colonies during the breeding season, some of these indications will be found if the disease is present, and will furnish certain means of a correct diagnosis; but it is to be noted that, after the breeding season is well over, a strong colony, though badly diseased, exhibits none of these indications. The cappings, if ever present, are all nicely cleared away, and the dead brood is entirely dried up—mere scales, almost of the color of the comb itself, lying fast to the lower side of the cell, and drawn back more or less from the opening. I have samples of affected comb with me, one of which illustrates this point, though the sample is hardly a fair one, as the scales resulting from the dead brood are more apparent than they usually are, being less drawn back, and thicker, and rather darker than they are often found.

To detect the disease in strong colonies, some little time after brood-rearing has ceased, open the hive and apply your nostrils directly to the combs as they hang in the hive. If the disease is present to any extent, and your olfactory organs are sensitive, you will detect an odor more or less strong, which may be described by the term "old." But not many, at least at first, could say by this test with any degree of certainty whether the colony were diseased or not. It is to be taken only as an indication.

Now take out three or four combs, one by one, from near the center of the brood-nest, and hold each with the bottom-bar from you, in different directions, until the light strikes well into the *lower side* of the cells, when, if affected, the scales I have described are very evident. The sample makes this plainer than any amount of description can do.

In contending against the evil there is nothing so important as an active knowledge of the sources whence the danger of spreading the contamination arises. With this knowledge, I am convinced there is little necessity for fear that the disease will spread to healthy colonies, if only the sources are within reach of the apiarist. If many wild bees, among which it has a foothold, are in the vicinity, it must become eradicated there in the course of nature before the apiary is safe; for every wild colony affected will, in time, surely die, and its honey, if any be left, will be appropriated by other bees, and the plague unavoidably disseminated. This danger can not well be guarded against; but those at home may easily be reduced to a very small figure. They fall under three heads—those from infected honey, from infected combs, and from infected hives.

Under the head of hives is included, of course, all paraphernalia. I think the principal danger from this source arises from infected honey which may have been left on the parts of the hive by daubing or otherwise. No bee should be allowed to visit them; and, as soon as it may be safely done, they should be boiled in water, scorched with flame, or burned up. Either method is effective. Infected combs are dangerous, not only from the honey, but also from the dead brood which they contain. Every dead larva is a bundle of seeds; and when moistened by honey, new brood, or otherwise, they are released, and carry death wherever they go. Such combs are safely rendered innocuous by fire or boiling only. The extremest caution in changing combs from one colony to another should always be observed. There is no more certain and rapid way of propagating the malady. Infected honey itself, however, is the chief medium by which foul brood is disseminated, and so it is the principal source of



FOUL BROOD SCALES IN COMB. MAGNIFIED FIVE TIMES.

danger. The bees are sure to contract the disease thereby, whether they obtain it by deliberate feeding on the part of the apiarist, or by gathering up what is carelessly allowed to drip and to be left exposed about the apiary or by robbing. When once pointed out, every bee-keeper should be able to guard against the danger arising from the feeding and the dripping of honey; but to secure protection against robbing, extraordinary care is often required. If bees were deprived of their disposition to rob, foul brood would soon be eradicated. This can not be done. Indeed, to one who has had to deal with the plague, this disposition seems to be increased thereby. The more powerful nations of Europe keep their eyes upon the Turk as the "sick man," waiting for occasion when they may profit by his dissolution. The bees emulate the example of the nations. As soon as they catch the odor of the disease issuing from a hive, they promptly label it "the sick man," and eagerly watch and wait; and at length, unlike Russia, Austria, and the rest, instead of holding each in check, they all turn in at the nick of time to complete the work of destruction, and, like many a human individual and nation, find the seeds of death wrapped up in their ill-gotten wealth.

From infected colonies that are reasonably strong and in good heart, with sound hives having moderate entrances, I should not apprehend immediate danger, but I would keep a sharp lookout for the impending decline. It behooves him whose bees are infected, whether or not he obeys the general injunction, "Keep all colonies strong," to be instant in his efforts to keep all diseased colonies strong. No one will understand me to advise building up such colonies. I mean, only, that no weak one in a diseased condition should be tolerated for a day; and, indeed, it is to be hoped that this advice will be seldom applicable; for it is to the interest of every apiarist to banish the disease by the most effectual method, as speedily as possible.

I hardly need add, that the taking of bees from a diseased colony, and adding them to a healthy one, would as certainly convey the disease in the honey carried as though it were brought by robbers.

I shall close here, for I am sure that, if due and timely heed be paid to the directions given herein, and in my paper of a year ago, no one need be greatly alarmed nor very seriously damaged by foul brood; and I only hope that none of you may ever need even to call them into exercise.
R. L. Taylor.

Lapeer, Mich., Mar., 1891.

[I have carefully read your paper, friend T., and I consider it one of the best that has ever been given on the subject. Your method of diagnosing diseased colonies after brood is hatched out, and combs have, after a fashion, been cleaned up, is an exceedingly valuable one; and although I have read a good deal of foul-brood literature, I believe you are the first one to give it. The sample comb that you gave at the convention was forwarded to us, and I exhibited the same in person to our artist, showing him the scales and what we wanted illustrated. After examining it he answered that it was a hard thing to illustrate. Then I said, "Enlarge the drawing five times. This is such an important matter that we want everybody to see it." He did so, and I am glad to present the result above. The scaly appearance around the edges of the cells is perhaps a little exaggerated, but this was necessary in order to show them. That you may understand it better, I will say that the piece of comb was stood on end, and a knife sliced right through three or four of the cells, longitudinally. The other row of cells is shown just back. A few scales are seen at the bottom, but more of them are attached around the edges, and that side or sides of the cell which are the bottom when in the hive. I shall be glad to have friend Taylor tell us how near the engraving does justice to the thing itself.

Your methods or precautions for preventing the spread of the disease are excellent, all of which we have tried. We can not place too much emphasis on being careful.

Perhaps some may wish to know, in this connection, what Mr. Taylor's method of cure is. It is very similar to the one we give in the A B C book; in fact, I believe it is just the same, because we followed Mr. Taylor.]
E. R. R.

THAT TRADE-MARK.

MR. HEDDON ARGUES FOR ITS ESTABLISHMENT IN THE BEE-KEEPERS' UNION.

On page 143 I see you quote the words of an anonymous writer in the *American Bee Journal;* and in your foot-note on the next page you say that "some of the points are well taken;" but some way I fail to find much argument in the quotation. In the first place, "Bro. Heddon" has never been "enthusiastic" nor has he yet "waxed eloquent" over the trade-mark scheme, but has said from the beginning that it was only a snap idea gathered in a moment's time at the late Detroit State convention. You were there, I believe, Mr. Editor, and will recollect that, at the outset, it was admitted by all that consumers of honey had full faith in the purity of goods straight from the hands of producers. I think few will deny the prevalence of such an opinion. Well, as producers have, in the past, placed lots of poor honey upon the market, and surely as much adulterated as they ever will, that washes away that point presented by Anonymous. The Union will not warrant any thing, neither need it; for already has the public full confidence in the purity of all honey put up by producers. The object of the trade-mark is to let the whole public know at all times just how to quickly determine which is from the producer. Mr. A. can not see how a trade-mark can be obtained from the government, for the Union. Well, your gentle subscriber can see, as well as he can see some other things connected with patent laws and rulings, which many others can't get even a glimmer of. The manager can get a trade-mark of a 30-years' longevity for $40, and then make out an individual right to any one he pleases. This can be done at a cost not exceeding one cent per person. I wish our friend A. would tell us how the trade-mark scheme can hurt the Union "awfully;" that is what I can't see. Will A. be as kind to me as I have been to him, and enlighten me? If the Union doesn't handle the trade-mark scheme, who will? Only some organization of actual honey-producers can afford to give a great number of bee-keepers such an advantage, at cost. Already the manager of the Union has to be on the alert to detect any attempt on the part of any bee-keeper to creep slily into the Union for its protection after persecution has already begun. It will be just as easy—yes, much easier, to keep out of the Union, or keep the trade-mark out of the hands of a city packer of honey who happens to import a wasp-nest into his garret in order to be classed as a honey-producer. It will be much easier than to prevent or detect perjury when a witness has taken an oath which gives his statements a hundred-fold weight. I think we shall have little trouble in plugging up the small holes in this dipper, the same as we have to do in nearly all of the affairs of this world. If our basic principle is right, our details can be made to join in the success. Are they? So far I don't see that they are not. Do you? JAMES HEDDON.

Dowagiac, Mich., Feb. 21.

AIR-CHAMBERS VS. CHAFF PACKING.

S. A. SHUCK DECIDES IN FAVOR OF THE AIR-CHAMBER.

Considerable is being said about "dead-air chambers" in double-walled hives, as against chaff packing. The question arises, "What is known as to the difference between hives with double walls packed with chaff or other light material, and those with double walls and no packing?"

Without calling in question the views set forth by other writers on this matter, I wish to present a few thoughts which I believe have not been set forth heretofore. In the first place, I wish to contrast air-chambers with those packed with some light material. It is well known to all those who have acquainted themselves with the action of cold and heat when applied to air, that heated air rises up, and chilled or cold air settles down. A moment's thought in this direction will show that, as soon as the temperature outside of hives containing the so-called dead-air chambers becomes colder than that on the inside of the hives, the air in the chambers becomes active, and can not be said to be dead. As the outer walls of the hives become chilled, they in turn chill the atmosphere adjacent to them on the inside of the air-chambers. This chilled air settles to the bottom of the chambers, while that near the inner walls of the hives, being warmer, rises up to the top of the chambers, thus starting a circuitous motion, which is continued as long as there is a difference between the temperature outside of the hives and that within the hives. It will be seen that, if these chambers were filled with some light material, such as chaff, this circuitous action of the air in these chambers is prevented, the process of cooling is retarded, and the protection afforded the bees in any hive is in proportion to the retarding of this cooling process.

No little stress is being placed upon the superiority of air-chambers over chaff packing, by some writers, while it is conceded by many practical bee-keepers that bees can be packed too warmly, even during our most severe winters; while it is known, on the other hand, that large air-chambers are not beneficial. As proof of the foregoing, it is only necessary to mention that house-apiaries have proven to be the poorest of winter repositories for bees, when no further protection is afforded than that of the building and the hives. But where the hives are thoroughly and carefully packed in dry chaff, bees winter as well, perhaps, in house-apiaries as anywhere.

While it is easily shown that chaff packing affords greater protection to the bees, there are other facts to be taken into consideration. Hundreds of bee-keepers have learned that the effect of the direct rays of the sun on the hives is as beneficial to the inmates as it is to our cattle, hogs, sheep, horses, etc. Hence, it will be seen that, while the chaff packing is a protection by retarding the cooling process, it also becomes a hindrance in the process of warming up the hives and their inmates. If the hives were packed full of bees during all severe weather, the benefits derived from the direct rays of the sun would be greatly lessened, and those afforded by the chaff packing would be proportionately increased, owing to the protection given to the inner walls of the hives. But, on the contrary, the hives are usually less than half full of bees; and, not only this, the entrances being open they permit the unoccupied portion of the hives to become nearly as cold as the outside atmosphere. Owing to these conditions the difference between the protection afforded by chaff packing and air-chambers is so slight that it would be difficult to observe its effects upon the bees.

There is still another difficulty encountered in chaff packing—that of keeping the chaff perfectly dry. If the chaff becomes damp it is more detriment than good; and the injury resulting from moisture in this chaff packing is just in proportion to the degree of dampness and the severity of the weather; as, the wetter the packing and the colder the weather, the nearer it approaches the condition of an ice-chest; and the longer it is in thawing out, and the less the influence of the sun's rays upon the hives. This, I think, is the principal source of unsatisfactory results from chaff-packed hives; and owing to the difficulty in preventing moisture in chaff packing, it is highly probable that air-chambers will give us more general satisfaction; notwithstanding, the degree of protection afforded by these air-chambers depends largely upon their being absolutely tight, so as not to lose the heat except as it is driven through the inner walls of the hives by the action of the cold on the outer walls.

Liverpool, Ill., Feb. 9. S. A. SHUCK.

HERE AND THERE.

SHORT NAMES FOR THINGS, ETC.

CAP-KNIFE.

Why not drop the long and awkward name, "uncapping-knife," and adopt the name I use for it, the cap-knife? You are welcome to it, and why doesn't it fill the bill?

BINDING GLEANINGS.

And now let me give you *my* plan for binding GLEANINGS. Get some of those T-shaped brass paper-fasteners, which lawyers and others use to fasten legal cap and other papers together. Take eight numbers, four months GLEANINGS, leaving on them all covers and all advertisements. The latter are often as valuable as any other part. Arrange the eight numbers carefully, in nice even shape, and, with an awl, punch three holes in the proper places—one in the center and one near each end. Now drive a T through each, having the point come through into a gimlet-hole or other small hole in the bench, or in a board. Then turn the volume over and clip off the sharp points of the T with cutting-pliers or shears. Turn down and then hammer down the points of the T with a light hammer, and it is done. You now have a nice handy little volume about the size of a copy of the *Century*, and a year's GLEANINGS makes three of these little volumes, which are much nicer and handier than a year in one volume. Bound thus, eleven numbers of the 1890 *Review* will make a nice little volume; and the numbers for 1891, and the Dec., 1890, number, will make two nice volumes.

CAPTIONS AND NAMES.

And now, friend R., permit me to hint to you that G. M. Doolittle, Borodino, N. Y., wouldn't look a bit worse if placed just under the caption than it does at the tail end of an article. That is, I—I mean to say that it would look just as well under the caption. And if you would only place it there, you would confer a special favor upon every busy reader of GLEANINGS who can afford to waste no precious moments of his limited reading-time; and you would receive the heartiest thanks of thousands of such busy readers. Also, please give plenty of catch-lines. They are always helpful. And whatever you have to leave out, please don't leave out any foot-notes. Do you fully realize that, with the exception of a few of the ablest articles, they are the most valuable and helpful part of GLEANINGS? And that is quite right, for so they ought to be. By the aid of caption and name, catch-lines and foot-notes, the experienced and busy apiarist will often be able to catch, in a minute the gist of the article, or be able to decide whether it will pay to read the whole of it, or how much of it he can afford to read.

THE QUESTION-BOX.

This is a very valuable addition, and even GLEANINGS seems a little more spicy when taken with a *Straw* in it. J. W. MURRAY.

Excelsior, Minn., Feb. 17.

[The "cap-knife" is shorter and just as good. Accepted usage, however (and this is something we can't very well change if we would), compels the use of the longer name, "uncapping-knife."]

EVAPORATING HONEY.

SUN HEAT, A LA BOARDMAN, WON'T DO. SO SAYS A CALIFORNIAN.

On page 50 Mr. Boardman asks whether the sun evaporator is not the secret of some of the California honey not candying. I think if he would travel around among California apiaries, as Mr. Root did, he would come to the conclusion that it is not the secret, because he would find very few if any sun evaporators. I admit that honey exposed in a sun evaporator for several days will not candy, at least for a long time; but our sage honey will often remain liquid several years without candying. On the other hand, some of our spring honey will sometimes candy in a week or two after extracting.

The carload of honey which I sold to Mr. Root ran directly from the extractor into large tanks, from which it was drawn into new five-gallon cans; and I do not think you will find any of it candied yet. My experience with sun evaporators has not been very satisfactory. They make the honey darker, and change the flavor, and do not evaporate fast enough. I should like to ask Mr. Boardman whether he can take this honey, extracted before any of it is capped over, and evaporate it thick, without changing the color or flavor; and if he can, how many of his evaporators would it take to reduce 2500 lbs. in one day? We all know it would be a great saving of time and labor to ourselves and the bees if we could extract all of our honey before it is capped; but the point is, whether we can evaporate it artificially, without injuring the color or flavor, as economically as the bees can. I say, no, not by the sun's heat. It is too unreliable, even in California. When your honey is thinnest, the weather is often cloudy or foggy. My only hope now is in "vacuum-pans." I think honey should not be heated to over 150°Fah., and it will not evaporate very fast at that temperature unless in a vacuum. I wish some one living near a condensed-milk or sugar factory would get them to condense some of their honey, and see whether it affects the color or flavor; and if not, find what it will cost to reduce a ton of honey to 1500 lbs. Perhaps it will pay to have small vacuum-pans, and work the air-pumps by hand or horse power. This is extracting the water from honey by power instead of heat. J. F. MCINTYRE.

Fillmore, Cal., Feb. 16.

[Friend M., I want to thank you for having given me my first clear idea of what is meant by "vacuum-pans." We second your request. Perhaps somebody who has used the arrangement will tell us more about it.]

DISCOURAGEMENTS OF BEE-KEEPING.

AN OLD VETERAN RECOUNTS THEM.

[Read at the State Bee-Keepers' Association, Madison, Wis.]

As the bright side of bee-keeping is the one generally presented to the public, some items from the other, or discouraging side, ought to be in order. When I commenced keeping bees 34 years ago, we had no bee-literature of any account to aid us, but we had plenty of good pasturage, any amount of basswood timber, wild flowers, buckwheat, and but few bee-keepers, and nearly every season seemed to be a good one for honey. Honey bore a good price, foul brood was unknown, and even the moth-miller had not found us out. The prejudice against bee-keepers by farmers, fruit-growers, and others, of late years existing, was then never mentioned; but those good old times are past, and the favorable conditions then existing can not again be enjoyed. This thought discourages one. The improvements and the advance made in bee-keeping since I began have been marvelous. The movable frame, the extractor, comb-foundation mills, sections, cases, smokers, veils, different races of bees, large factories for the manufacture of supplies, and the excellent literature pertaining to bee-keeping, now available, have boomed bee-keeping. All items relating to big honey-yields and rapid increase have been given, copied in agricultural and other papers. These have advertised the business till the result has been that we harvested a countless throng of bee-keepers. As the saying is, the woods are full of them, and, we might also add, the open ground too.

Of the thousands who have commenced bee-keeping in the last few years, I am satisfied that, had they known fully the chances and the actual conditions as they existed, half would have turned their attention to something else; but, being captivated by the big reports of some of the few most favorably situated, to achieve success they embarked in the venture, not considering the much larger number who had made a failure of the business.

This big crop of bee-keepers is discouraging to me. It may speak well for the advancement of the pursuit and the cheapening of honey for the masses; but every accession to our ranks is one more rival in the field to lower prices and share with us the pasturage. A large part of the beginners are inclined to cut prices, which are already low enough.

Another discouraging feature: While bee-keepers are increasing, pasturage is not. Basswood is fast disappearing; buckwheat is not raised nearly as much as formerly; wild flowers are disappearing before the plow, sheep, and cattle. One honey source, white clover, is on the increase, but is an uncertain honey-plant in our climate.

Fifteen years ago I had, including the home yard, bees in six places, the furthest yard being ten miles from home, with scarcely a rival yard that would lessen my crop; but for several years past, bee-keepers have increased to such an extent that last season I occupied only the home yard, and that was badly trenched upon by surrounding yards. The rest of my bees, 200 colonies, outside of those kept at home, I moved 28 miles, attempting to get them where there was a reasonable chance to make them pay expenses.

Another cause for discouragement is the appearance of foul brood at several places in our State.

The price of honey is also discouraging. This year, of all others, it would seem that honey ought to sell on sight; but many have found it hard to dispose of the little crop that they did have at any thing of a fair price. Honey is not like the staple farm products that have a fixed market price, and that will sell any day when taken to market. You have to look for your honey customer, and then he is not always easily found. I have looked for him sometimes at home, and sometimes abroad; and I have looked as far, even, as New York, and then not found him.

Still another discouraging feature is, that my bees went into winter quarters light in both bees and stores. I am not sanguine of being able to make a very good report for 1891, even should the season be fairly favorable.

The Bee-keepers' Union has been a comfort to me in the past; in fact, it sprang into life through my need, and came to my defense for its first work, and is still doing for the fraternity and individuals valuable service. Long may its officers live, and long may its banners wave; but I am discouraged because it does not number thousands where it numbers hundreds. In justice to ourselves as bee-keepers, it stands us in hand to be as prompt to chronicle losses and discouragements as we are items of success. I know it is more pleasant to tell of success than failure. We all like to tell a big story if a true one. But our interests demand both sides; so, let us see to it that we report both sides faithfully. S. I. Freeborn.

Ithaca, Wis.

[Friend F., we are glad to hear from you; and we are glad, also, to have you give us plain hard facts, gleaned from years of experience; but even if it be all true, exactly as you state it, bee culture does not differ very much from most other rural industries. They all have their ups and downs, and in one sense the field is pretty well crowded. A great army of people are looking in vain for something to do that is sure pay and has no discouragements, as you tell of. They do not find it. While in your State, and through the basswood region in your vicinity, some of your neighbors were so enthusiastic as to say that they never had a failure in basswood; but the failure has come already. Now, I do not believe, dear brother, that it will pay for many of us, at least, to become discouraged and give up. One of our bee-men was in to see us yesterday. He became discouraged because bee-keeping did not pay, and so he went into evaporating fruit. By the time he had a good crop, and a great lot on hand, the prices went down so he could not sell. Last winter he sold his evaporated apples for 5 c. per lb. because he was discouraged. This winter he said he could have sold them readily for 15 cts., which would have made a good profit, and paid a good interest during the time he held them. But he is now out of the fruit business. Let us do the best we can, year by year, leaving no stone unturned, as Doolittle says, to secure a crop; and I think we shall, as a general thing, fare as well as the rest of mankind. It is true, it is not well to have too many bee-keepers so crowded together as to overstock the locality. But I think this state of affairs will not continue long. The fittest will survive, and the others will give it up.]

THE NEW DOVETAILED HIVES.

TOO MUCH OR TOO LITTLE FOUNDATION; A SUGGESTION FOR EMMA WILSON.

Friend Root:—I have to-day finished nailing up 250 dovetailed bodies, 100 dovetailed supers; covers, 100 each, and bottom-boards, and 2000 Hoffman frames, all of the latter nicely wired. I have had only a boy 13 years old to help me, and have gone out selling honey and vegetables on an average of at least once a week; so you see I have been quite busy. All the above is for my individual use the coming season, and I hope to fill them with full swarms by natural swarming. I should like to say right here, that, although I have dealt with you extensively every year for over ten years, this last lot of goods has been the best, and has given me more satisfaction than any I ever bought of you before. You certainly are improving all the time in workmanship.

Now for a little chat in regard to several topics. I should like to ask those who advocate the use of less foundation, if they were offered all they could use free of cost would they not use full sheets of it in the brood-chamber, and full-sized starters in the sections? I am sure I would, for one, *every time.*

Your remarks on page 34, in regard to taking a partner, fit my case exactly. Three times in life I have been broken up by doing so, and I propose hereafter to have only wife and children as partners.

Tell Miss Emma Wilson to try an apron made of the waterproof cloth, recommended for hot-beds—the lighter quality; I think she will like it. It will be a little stiff at first, but soon gets limber and pliable, especially after being washed.

I have used bricks for recording the different operations in the apiary for years past, and prefer them to a memorandum-book.

KEENEY WIRING VERY SATISFACTORY.

As stated elsewhere, I have just finished wiring 2000 Hoffman frames, and I am surprised that any one finds fault with the bent nails. I think I have used, or tried, every method of wiring mentioned in the bee-journals since wiring frames has been invented, and none of them equals the Keeney plan, in my estimation. Perhaps friend Bunch (see page 100) nailed his frames together *first*, before putting in the wire nails and bending them; if he did, let him take 1¼-inch No. 18 wire nails; drive them through at the proper place, and then with small-sized pliers give them a twist. He will soon get the hang of it, and he will never nail the frames together again before putting the wire nails in. I can make them very uniform and yet twist them faster than a smart man or boy can drive the nails through.

HONEY FOR CHILDREN; HOW TO GIVE IT TO THEM ON SQUARES OF PAPER.

I have two little tots, aged 5 and 3 years respectively. They take a great interest in my work, and "want to help pa" every way in their power. I feel sure it would do you good, friend R., if you could see them come into the workshop every morning about nine o'clock, each with a little square of paper, and say, "Honey, papa;" and then I go to the barrel of candied honey and dig out a suitable quantity. It makes me smile to hear their "thanky, papa," and see them sit down by the stove and enjoy it. In the afternoon they repeat the same, as regularly as clockwork, from day to day. Some may think they might eat too much of it, and so get tired of it; but care is taken not to give too much at any one time. I find that, when given honey in that way regularly, they care little or nothing for the ordinary candies we buy; and as for health, if you can find healthier, rosier, or more active children anywhere, I should like to see them; and, by the way, friend R., I have a theory that, if they grow up accustomed to the daily use of such pure sweets as honey, they will never require a taste or fondness for stimulants or intoxicating liquors. Have you ever observed that any one given over to the use of intoxicants seldom or never uses sweets in any form? When a young man I met at social gatherings many friends and acquaintances; and when refreshments were served I noticed on quite a number of occasions that three of the young men present never touched any thing sweet, but were very fond of pickles and stimulating dishes. In a few years every one of them died of *delirium tremens*, from excessive use of intoxicants taken in secret. Since then I have found it the rule that, in 99 cases out of 100, those that use sweets rarely care for stimulants, and *vice versa*.

SELLING EXTRACTED HONEY LOW, AND WHY.

I have just received a letter from friend Baldridge, of St. Charles, Ills., in which he (in a friendly way, of course), scores me for selling extracted honey at retail at 10 cents per pound, and says that he gets 20 cents for all he sells, and that, if he had to take 10 cents, it would drive him out of the business; and he further states that it is more profitable to him to buy extracted honey at 5 to 8 cents a pound than to raise it. Now, I know that friend B. sells gilt-edged honey, and he has, besides, a very taking way with his customers, and he keeps the custom he makes, too, which shows that he deals fairly and squarely; but notwithstanding all this, I do not believe he could sell in my vicinity at any better figures than I do. My customers are mainly coal-miners, and laborers in large manufacturing establishments; and if you say to them 20 cents per pound for honey, they will laugh at you and do without it. A few will buy it at that price for colds, and to use as medicine; but as food, never. I have made it a point to go to every house, street by street; and if this article were not too long already I could give some pointers too, as to how to sell honey to those who think it too good, and too high priced for food.

You have to suit your prices to the class of customers you deal with; for there are some few who will pay any price asked, provided they get what they want. Another thing, too, is that no basswood and but little white-clover honey is raised here. Our chief source of honey is fall flowers, and it is necessarily more or less dark. Though Spanish needle and smartweed yield clear nice-looking honey of excellent quality, it is not gilt-edge or superfine, and must bring a lower price, both wholesale and retail, than the finer-looking grades of white clover and basswood raised elsewhere.

Belleville, Ill., Feb. 7. E. T. FLANAGAN.

[Friend F., your suggestion is good in regard to giving the children honey instead of candy. For the past four or five weeks we have been having excellent maple molasses, and I fear I have been using more of it than is conducive to my health. A day or two ago I thought I would substitute honey, and see whether it answered any better, and I was agreeably surprised that, when taken in considerable quantities, with its complement, a glass of milk, it seemed to be much more wholesome, at least to myself, than the maple syrup. Very likely both are nature's sweets, designed by God for human food; but the holy Scriptures lay very much more stress on milk and honey than on any other kind of sweet.]

MOISTURE IN BEE-CELLARS.

DOOLITTLE REVIEWS THE MATTER.

On page 877 the editor adds quite a long footnote to what I have to say about the dampness in my bee-cellar. On the whole he is perfectly right; but his reasoning does not fully apply to the cause of dampness in bee-cellars, as he will soon see, I think, if he will stop to think a little. As he says, the cause of moisture and water collecting in drops on any surface is that of warm damp air coming in contact with a cold or cooler surface than the surrounding air. From this he reasons that, at times when the outside air is warmer than the air of the cellar, this warm air will enter the cellar through the ventilators and thus cover the walls with moisture, making all damp and wet, and thinks it is for this reason that I do not have any ventilators to my cellar. Well, now, while this might be the cause of dampness in a bee-cellar once in a while, yet in 99 cases out of 100 it has nothing to do with it. Without any ventilators whatever in my new bee-cellar, the flagging cover and the painted door at the entrance have been running down drops of water on the inside all winter, and no air from the outside has been allowed to enter. The reader will remember that, at the front end, this cellar is 3 feet under ground, while at the back end it is 9 feet. Well, the air which comes from the back end of this cellar, or, perhaps I should say, the air warmed by the lower back end of the cellar and the breath of the bees, together with the heat from their bodies, is warmer than the flagging overhead or the door at the entrance, which are affected by the cold and frost from the outside, so that, when this warmed air comes in contact with these cooler surfaces, the moisture from it is condensed on them; hence the moisture is continually trickling down on the inside. It is to be remembered that the three feet of earth between the two roofs is kept frozen the most of the winter, or the upper half of it at least, and this is the reason, or one of the reasons, that the temperature of the cellar does not vary one degree inside, although the outside temperature may vary from 30° below zero to 60 above. When it comes more steady warm weather, during the latter part of April, then I have things reversed; for at that time the inside of the cellar is cooler than the dirt and temperature outside; hence the moisture now condenses on the outside of the door and flagging. Am I not right, friend Root?

SUNDAY PLANNING.

It was with great interest that I read the article by friend Miller on "Planning," and your comments on the same, especially that part which touched on planning during Sunday and while in church listening to the sermon. Friend Root seems to think that Satan has *all* to do with it, but I think *not* all. There is a great difference in speakers, or in the way they present the truth. I have sat in church trying to follow a sermon which was presented so dryly, and in such a sleepy way, that I had to use all the powers which I was possessed of to keep my mind on the discourse, at least half of the time; and, again, I have listened to sermons in which the truth was presented so pointedly and interestingly that I could not get away from it *one second*, even to think of some horse-trade or some other exciting thing that happened only yesterday, that was the theme of the whole community. While I have the highest respect for all preachers of the gospel of our Lord and Savior Jesus Christ, yet I have a lingering thought about me that some of them might be serving the master better between the plow-handles, over a bee-hive, or in other callings in life—preaching the word by their "daily lives and godly conversation," rather than trying to preach it from the pulpit. But, really, is it contrary to God's will to do any planning about temporal affairs on Sunday? If the Christian has placed his life and all his ways in the hands of God, willing to be led by the Spirit, and to use all of the things of this world which come to him for the honor and glory of God, so that all the success of his planning is to be put into the cause of the Master, may not his planning then be according to God's will? What is God's will? and what am I to think about on Sunday? About heaven and God in the way many people try to do? If so, then I feel a good deal like the heroine in "Stepping Heavenward," where she says she does not wish to "sit on a bench in a row with others, singing through all eternity;" yet this is about as high and enlarged views as most people have of heaven. Jesus went about doing good, healing the sick, lifting up the fallen, etc.; and he did this on the Sabbath as well as on other days, and he is our great Exampler; and if the outcome of our planning reaches out wide enough to take in all this, why say, "Not *another word* of it on God's holy day"? Oh for broader views and greater enlightenment along the road toward heaven! views that reach out till they can in some measure grasp the Infinite.

BASSWOOD.

If I am correct, Ernest says that the basswood is more luxuriant in growth here than it is in Ohio, and I have so understood by other parties. This being the case, imagine my surprise at seeing, on page 130, that you are receiving lumber cut from logs which have grown from sprouts from the stumps of basswood trees cut only ten years ago! I know basswood is capable of doing great things; but this is altogether ahead of me. Ernest spoke of the thrifty growth of basswood near my apiary, which has grown since the year before I came here, it being all cut off at that time (1874), yet there is not a stick in all this growth that is more than seven to nine inches in diameter, that growth taking 16 years. Some, further from the apiary, that are from 30 to 35 years old, are a foot to fourteen inches through, which might do to cut; still, it would be very wasteful to do so. Would it not be well to modify that statement a little?

Borodino, N. Y. G. M. DOOLITTLE.

[I grant, friend D., that these statements, when put side by side, look a little contradictory; but one fact, perhaps, you have overlooked. The trees which we referred to as having such a rapid growth, grew from the *parent* stumps, i. e., "on the old man's capital." The roots were, of course, strong, and gave the young shoot a tremendous boost, and it is not much wonder that they grew so rapidly. If I remember correctly, the basswood-trees which you showed me, and to which you allude in your article, grew from seed; i. e., they had to build up from *their own* capital. You will notice sometimes, that young locust shoots will spring up and grow with wonderful rapidity from the roots of an old tree; but they would not begin to make half that growth if they had to depend upon their own roots. The farmers who brought us the basswood lumber in question said they had cut it from the same roots from which they had taken lumber ten years ago. If your trees grew from the stumps of old trees, then, of course, I am unable to explain it; but I am sure that the trees of *natural* growth in York State are much more thrifty than those in Ohio.] E. R. R.

[I think you are probably right, friend D., in regard to dampness in the cellar; but in regard to Sunday planning, my test is this: When I plan greenhouses or other week-day matters, even though the sermon may be dry and dull to *me*, I feel a loss of spirituality, and conscience tells me that I am out of the straight and narrow path. Like yourself there are some sermons, or, rather, times, when it is no effort to follow the preacher at all; but sometimes Satan presses me sorely, even when *good* sermons are being preached. Perhaps my greatest temptation is to let my mind go running on some affront I have received. Then before I know it I begin to plan the letter that shall be written to so and so. Now, letting my mind go on such topics on the Sabbath does me harm, and I believe it is the Holy Spirit that tells me I had better listen with all my mind to the dryest sermon I ever heard, rather than to let my thoughts wander on week-day cares or enjoyments. Every sermon, as a rule, contains more or less Scripture texts; and if we listen to them, we shall be doing well. I agree with you, that Sunday should not be a *lazy* day; and when I have a good-sized class in jail (as I have now) I oftentimes do quite a little planning as well as praying in endeavoring to lead them to the Master.]

CLOSED-END FRAMES.

TESTIMONY FROM ONE WHO CONSIDERS THEM "UNBEARABLE AND ABOMINABLE."

Friend Root:—I am completely astonished at so many testimonies in favor of the closed-end or half-closed frames. I have tried them both in Texas and Cuba, and, to own up, they are simply abominable and unbearable; furthermore, I never have known any one to try them who did not get a hatchet and reform them at the first convenient time. They positively will not do here in Cuba, no matter how expert the operator may have become in a colder country. The main reason is, genuine bee-glue, or propolis, that abounds too abundantly, and of a superior quality. In reality, it is so good for glue that, when a colony is left gluing for half a year on a stretch, its frames can be removed only in pieces by a chisel; for, before the joints will separate, the wood will split away off in some other way, and leave the edges glued as firmly as ever at the joint.

As for handling the Hoffman frame rapidly, it, of course, could be done by a Hoffman-frame man; but I should feel shabby if I saw any man handle Hoffman frames as fast as the common frames (that are in general use) can be handled by a man who has had practice enough to work rapidly. Friend E. R., the reason you get only the Hoffman side of the question testified to is because so many like myself have such a contempt for a frame that kills bees and clogs up so, that they don't even care to give in their testimony. But it is now time that the other side of the question were being spurred up; for if it keeps as silent in the future as it has during the past six months, all the beginners will have Hoffman frames, and owe their thanks to

E. R. Friend Woodward's article on page 96 should be read the second time by Southerners who think of ordering frames for the first time, for bees don't generally build perfect combs, for beginners especially.

As far as spacing is concerned, when it comes to extracted honey the Hoffman frame has no advantage, for the simple reason that there should be one or two frames less in the top box, or extracting-super, than in the brood-chamber; for example, if you use nine frames in the bottom you want only seven on top to get the best result with the least labor. Now, how about changing frames from top to bottom without first scraping all the wax and propolis off the edges that didn't touch while in the extracting-super (a sharp hatchet scrapes them for me, and then it doesn't have to be done over again)? and I have friends who advocate the same plan at home, if not in print. W. W. Somerford.

San Miguel de Jaruco, Cuba, Feb. 15.

[That's pretty hard on the closed-end and Hoffman frame, friend S.; but this is what we want—a ventilation of *both* sides of the question, for all localities. Such adverse testimony is valuable. It proves that, in some localities, the propolis may be so bad as to make closed-ends "unbearable and abominable." I have never said that these frames would please everybody. On the contrary, I have hinted pretty broadly all along that the loose frame would never be abandoned; that one frame would be used about as much as the other. Beginners won't be hoodwinked, as you intimate—they will take what their supply-dealer recommends them to; and that, at the present as well as in the past, is the loose hanging frame. Our standard frame, the frame that is sent out in hive combinations, is the loose L. frame. For *special orders* only, we send fixed frames; i. e., closed-end or Hoffman, and generally those are in small lots for "samples to test."

It may be you haven't acquired the knack of handling these fixed frames; still, I should more think your two localities wouldn't admit of their use on account of the extra amount of propolis. Dr. Mason insists that closed ends wouldn't do for him. But all this doesn't argue that there are not a good many other bee-keepers who can use them. No, I won't take back one word that I said in favor of them where I saw them used successfully. In many hands they are a grand success. If propolis is so bad with you, I don't see how you can use sections or even wide frames. Why, they would be stuck together so badly that you would have to use a hatchet to pry them apart. If that is the case, of course you couldn't use closed-end frames. See p. 208 for the "other side."] E. R.

A CHEAPER METHOD OF MELTING WAX.

HOW TO CONSTRUCT A WAX-BOILER OUT OF WOOD, WITH A TIN BOTTOM.

After reading E. France's experience in melting beeswax I feel inclined to give your readers an account of a much cheaper boiler that answers the purpose very well. I have been using for some years, for a wax-rendering boiler, a wooden box about two feet square and one foot deep, with a tin bottom. The box was made several years ago, as part of an outfit for making foundation on plaster-of-Paris casts. It is made of pine lumber; and in order to get the corners water-tight, the end pieces are let into gains or grooves, across near the ends of the side pieces, and well nailed. The tin bottom should be about an inch larger all around than the outside of the box. To put the bottom on so that it will not leak, paint the bottom edge of the box heavily with thick white lead and oil, before nailing on the tin. Then turn up the projecting margin of tin and tack it securely to the wood, having previously used a liberal supply of white lead in this joint also.

The box, or boiler, is used on an old cookstove in the shop. The combs and cappings are put into a sack of strainer cloth. And I may remark here, that a large bulk of combs can be put into a moderate-sized sack when the lower part of the latter is immersed in boiling water. After the comb is all in and much of it melted, the sack should be tied up, and a slatted honey-board placed over it. This can be kept down under water, and a strong pressure brought to bear on the sack of comb by the use of a small pole or prop cut just long enough so that, when one end is pressed down firmly on the honey-board, the other end will rest against the ceiling above. At this stage of the proceedings, if the water is boiling I remove the fire from the stove, as a precaution against the wax boiling over, and leave it to cool. The wax can be remelted in more clean water—the more water the better—and allowed to cool slowly, if a very light color is desired.

Farina, Ill., Jan. 6. T. P. Andrews.

[We used to employ the same method of melting wax in a common second-rate wash-boiler. A boiler could be made in the way you describe, and such a receptacle would be a capital thing in which to scald foul-broody hives. A boiler made entirely of tin, and large enough for the purpose, would be rather too expensive.]

GERMAN CARP AND CARP-PONDS.

SOME INTERESTING FACTS.

Every pond should be so arranged that the whole of the water can be drawn off, not leaving a gill in any one place. The water should be drawn yearly, between Dec. 1 and April 1, taking out every fish, frog, tadpole, etc. Young carp a year old will eat the fish-eggs; after this, instinct teaches them not to eat them; hence, breeding-fish should be kept by themselves. The large tadpole that lives through the winter is a dear lover of fish-eggs, and will leave but very few to hatch. From three pair of breeding-fish, at two years old, in 1886, I got 1500 young; and as I had more grass around the pond, and these fish got larger, I had more and more young fish, until in 1889, it was an innumerable multitude. Because of sickness in 1890, the pond was not drawn off till June, and not a single young fish was seen. This utter failure was wholly chargeable to the large tadpole. I have three ponds — one for breeding, one for those I wish to eat, the other for small fry. Last year one pond stood all the year without water. This year it will be equal to a new one, and another pond will go dry this year, etc. One acre of new pond is worth as much for growth of fish as four acres of three or four year old pond. I can not agree with my friend that his fat carp were made so by preying upon other fish. It was another breed that had eaten the young fish. All the millponds, creeks, and rivers in this country are getting well stocked with carp from broken carp-ponds, and many of them are very fine, weighing from six to ten lbs. or more. It is very pretty to see the young fish eating biscuits and light bread thrown to them after they have been trained awhile. Hundreds may be seen at a time, reminding me of bees swarming. Selling fish for stocking other ponds has more than paid all

cost. But to raise them for food purposes could hardly be made a paying business unless the ponds were very large, and could be rested every other year. N. Jef. Jones.
Design, Pitts. Co., Va.

[We have given place to the above principally because it speaks of the fact that the German carp is now to be found generally in our brooks and mill-ponds. If this is true, then the work of the fish-commissioners, in scattering German carp throughout our land, has been a good one. Inasmuch as we have published a book on carp culture, and there is a periodical devoted to the subject—namely, *National Journal of Carp Culture*, Alliance, O., we think we shall have to devote our space to other subjects for the future.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 180. *Please tell how much ventilation bees need when wintered outdoors, and how you would secure it.*

We leave the full fly entrance open.
Illinois. N. W. C. Mrs. L. Harrison.

The entrance is all the ventilation they need.
Louisiana. E. C. P. L. Viallon.

Just how much they need is a question I am not prepared to answer. I have had them winter well with *much* and also with little.
Vermont. N. W. A. E. Manum.

Only that from the usual opening, and this should be restricted when very cold. To secure this, keep dead bees out.
Michigan. C. A. J. Cook.

We remove the cloth and use a straw mat over the frames, with absorbents in the cap or upper story. We give but little lower ventilation.
Illinois. N. W. Dadant & Son.

I never winter outdoors. If I did I believe I would put a two-inch rim between the hive and bottom-board, and close up tight, but open the entrance when warm enough for the bees to fly.
Ohio. N. W. A. B. Mason.

We leave, at the bottom, six ⅜-inch holes open all winter, just the same as we have in summer. In summer we have a 1½-inch hole through the front side of the hive, half way up. That hole we close in winter.
Wisconsin. S. W. E. France.

I don't know. I'm trying four outdoors, pretty well covered up, all but the entrance, and that's 12x2. Ought to kill them, oughtn't it? Likely it will. But then, I can say it's the climate.
Illinois. N. C. C. Miller.

I have wintered outdoors successfully several winters, with no other ventilation than the summer entrance, which was ⅜ inch high across the front of the hive, and again lost heavily with the same treatment.
Wisconsin. S. W. S. I. Freeborn.

We abandoned outdoor wintering some years ago, consequently we are not up to the times on this subject. I am under the impression, however, that they do not need nearly so much as is usually given them.
New York. C. P. H. Elwood.

I have had excellent results by placing a rim under each hive, having an air capacity of about 500 cubic inches, and giving them a generous entrance. A close-fitting cover is on the hives, but no rags or quilts.
New York. E. Rambler.

About the same as in warm weather, on the summer stands, and secured in the same way by having the entrance wide open. I think favorably of an empty chamber below the combs for wintering out of doors as well as in.
Ohio. N. W. H. R. Boardman.

I ventilate by an entrance ⅜ by at least 8 inches long—usually the full width of the hive. If upward ventilation is allowed—*I* want none of it—the entrance should not be so large. The hive should be air-tight on top, entrance large, and hive well packed on all sides.
Illinois. N. C. J. A. Green.

Make the entrance ⅜ by 12 inches. Lean a board up over the entrance, so that no cold winds nor the sun can beat in at the entrance, also to keep snow and ice from forming there, and you will have things fixed about right, according to the opinion of Doolittle.
New York. C. G. M. Doolittle.

When I have seen many colonies of bees winter nicely under a snowdrift in old box hives, with no opening except three or four little triangular notches sawed in the bottom of one of the side boards, I do not know why a gimlet-hole will not give air enough, and that may be in the top, bottom, or side of the hive. I have seen much of ventilation, but I do not know much.
California. S. R. Wilkin.

I never could discover that bees needed any ventilation, in doors or out. At present I have over 60 colonies, of my 350, in a cellar which is half full of honey barrels and kegs, and I close it up tight without any ventilation whatever, only as I open the door to go down and see how they are coming on. This winter they are extremely quiet, and appear to be wintering perfectly. Bees flew lively outdoors yesterday, December 22, the shortest day in the year.
Michigan. S. W. James Heddon.

Very frequently I secure it by leaving the entrance just as it was through the summer. I like pretty well to put a special bottom-board under for wintering, which gives two inches more space below. This space is filled up with dry sawdust, except a little in front. In front there is an open chamber about 2x2x6, closed from the outer world by a movable block. Between the block and the corner of the bottom-board there is a vertical entrance, two inches high by three-eighths wide, and fenced against mice by a row of wire nails.
Ohio. N. W. E. E. Hasty.

Confine your bees to the brood-chamber, which cover with a board or boards, a honey-board, or something like it. Keep these boards warm by putting on a straw mat or its equivalent, because the bees cluster below, and would chill without this precaution. Have plenty of honey in your combs, with the heaviest toward the center, and a winter passageway through every one; full width of the entrance open, with a two-inch strip under the back of the hive, so that all moisture is bound to run out; otherwise it will be absorbed by the combs, sour the honey and pollen, and create dysentery.
Ohio. S. W. C. F. Muth.

[From the above, the general tendency seems to be giving at least as much room in winter at the entrance as they have in the summer time: and, if any thing, rather more. To all this I agree, only that I would not allow any sort of entrance that would permit mice to get in. I do not believe it will pay to undertake to contract and enlarge entrances as the weather changes. We once tried it on quite a good many chaff hives; and those that had the entrance open full width all winter, long did a good deal better than where any kind of contraction was practiced. A very small entrance will, of course, answer, providing the bees have upward ventilation—leaving the surplus arrangements on all winter, and such like arrangements. Friend Green is very emphatic in saying "the hive should be air-tight on top." Well, I think likely he is right, providing the entrance be large enough, or that there are other large openings through the bottom-board. Several mention having an empty chamber under the brood-combs. I am inclined to think this is a very good arrangement where you have movable bottom-boards. I rather think that ordinary cellars or caves will answer very well without any special arrangement at all being made for ventilation, and a great many bee-hives will also have all the ventilating cracks and holes that can be needed. There should, however, be some opening for bees to pass in and out whenever the weather is warm. With a loose, poorly made hive, if this opening is sufficient to let one bee pass, and does not get obstructed, it will do very well.] A. I. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SHALL WE CONTINUE TO SEND GLEANINGS IN BEE CULTURE?

No, don't. I've got enough. The contributions of some of the writers for GLEANINGS are good, and with them I find no fault; others I do find fault with—Rambler, for instance. The Home talks are obnoxious. To take a passage of Scripture, and branch off on to such boasting about a $400 team, a big factory, and so many hands to see after, and so much property, and me and mine, and big I, doesn't suit me.

Burnville, Ark., Dec. 22. H. C. M. BRALEY.

[Well, good friend B., the above would be rather discouraging, to be sure, if it were not for the great flood of *approving* letters that come in every mail; and, besides, there is another encouraging thought—you put our good friend *Rambler* down with the author of the Home Papers. I always *did* like to be in good company. Joking aside, however, I want to thank you for your criticism, even if it be very plain and rather severe. It has many times occurred to me that those who do not feel especially friendly might look at my Home talks in just the way you have. I did not mean to boast of our big team. I simply wanted to encourage the idea of having horses adequate to the work to be performed, and giving them good care. I do believe that many of our farmers would accomplish more, and do it *cheaper*, by having heavier horses, well cared for; and instead of the big "I" it was and *is* my purpose to exalt only Christ Jesus. The Home Papers, with all their imperfections (and I see them as plainly, I believe, as almost any one does), have been the means of doing good, through Christ Jesus, and to him alone be all the honor and praise. My old pastor, in his prayer one Sunday morning, said, "O Lord, we thank thee for our enemies, because they tell us our faults when our friends will not." Now, dear brother, I do not want to consider you as an enemy as we bid you good-by. On the contrary, may God speed you in all that is good and pure and holy. May be we shall become better *acquainted* some time; and I hope and pray that we may both become better men as the years go on.]

HOW TO KEEP DRIED FRUIT FROM THE MOTH AND MILLERS.

Mr. Root:—We have had a great deal of trouble every year in keeping dried fruit from the millers, or moths. We should like to hear through your valuable paper how to keep the fruit until spring from becoming wormy. We have been keeping them in barrels lined with paper, and tightly covered, but have not had any success. We are thinking of trying a new plan of putting the fruit, first in a burlap sack, then slipping it loosely into a bag made of oil cloth. We should like to hear the experience of some of the readers. BYRON H. WILEY.

Fillmore, Cal., Jan. 27.

[We sent the above to Prof. Cook, who replies as follows:]

If Mr. Wiley will put his fruit in paper sacks and then tie tightly, he will escape the insects surely, unless the eggs are laid before the fruit is put into the sacks. He says he puts his dried fruit in barrels lined with paper, and yet suffers loss. I think in this case the female moths lay their eggs on the fruit before it is put into the barrels. In such cases, if a small hole were bored in one end of the barrel, and tightly corked, it would be easy to free the apples or fruit of insects by use of bi-sulphide of carbon. Withdraw the cork, turn in half a pint of the liquid, and quickly cork up the hole. The liquid would destroy the insects, and would do no harm to the fruit. This would be a very cheap and convenient cure for the evil. It should be remembered that this liquid vaporizes very quickly, and that the vapor is very inflammable, and very explosive when mixed with air. In this case the barrels could be easily moved out of doors, or be kept in a room where no fire or lighted cigar, etc., is ever taken. I would use paper sacks for storing, and, in case of attack, I would use bi-sulphide of carbon to destroy the mischief-makers. Bi-sulphide of carbon very soon escapes if permitted; and it is so odorous that its presence, even in very small quantities, is sure of detection. It volatilizes so completely, that, even if thrown into a flour-bin, it all evaporates and the flour is uninjured. A. J. COOK.

Agricultural College, Mich., Feb. 6.

RAMBLER'S VISIT TO THE BAY STATE APIARY.

Friend Root:—I have read Rambler's visit to the Bay State Apiary with a good deal of interest. As you seem to have a wrong impression regarding some things, I will try to correct them. I judge by your foot-notes to Rambler's article that you have an idea that I am an inveterate smoker as well as Bro. Pratt. You are wrong in this. I do not use tobacco in any form, except to introduce queens. Although I use several pounds each season of the vile weed, it always has a bad taste to me.

You want to know whether we did not get the "plantain leaf" idea from you. Guess not. We have used it nearly 30 years, and used it, friend R., when you used to send orders to the Bay State Apiary for queens. That, I believe, was a good many years before you published a bee-paper. I give you a cordial invitation, friend R., to visit the Bay State Apiary whenever you can find it convenient to do so. You will see and hear about a good many things that have not been seen in print. You need not look for Alley in a bar-room, nor will you find him in the shade of a tree sucking an old pipe.

Say to Rambler that there is fourteen months difference in the ages of the "twins" he has pictured "eating" honey. These two little queens take a good deal of my time. They get "grandpa" up pretty early in the morning—a good deal earlier, sometimes, than he wants to get up. H. Alley.

Wenham, Mass.

[We are exceedingly glad, friend A., to know that you are not a tobacco-user. Perhaps I got my wrong impression from the fact that some one mentioned your using large quantities of tobacco in smoking your bees. We are glad to know that you are on our side of both kinds of temperance—whisky and tobacco.]

SOMETHING FOR FLORIDA BEE-KEEPERS.

As we bee-keepers in Florida have no paper that reaches, perhaps, more bee-keepers interested in making an effort to prepare for an exhibit at the World's Fair at Chicago than Gleanings, if permissible I should like to hear personally from each Florida reader who is a bee-keeper, as to what he thinks of forming a State Bee-keepers' Association at as early a date as possible, to meet at the capital of the State some time during the session of the legislature, so that, if possible, we might prevail on it for some assistance in making and caring for such an exhibit; and further, to state what amount of honey and fixtures you each could prepare for exhibition. We shall certainly have to unite, first, in a State association of bee-keepers before we can arrange for an exhibit that would call forth any thing like the resources of the State. I should like to hear the views of all the Florida bee-keepers in this matter. It is none too soon to begin the preparation.

John Craycraft.

Aster Park, Fla., Feb. 28.

FEEDING BEES ARTIFICIAL POLLEN WHILE IN THE HIVE; AN INTERESTING CASE.

It seems as if we were going to have a late spring, and a bad time for bees to carry in pollen; and why not take a hint from the following circumstance and put flour on the top of the hives for pollen? My father is 80 odd years old, and he told me that one of his neighbors, some 70 years ago, set a log hive of bees in an old barrel half full of wheat, to keep them out of the cold; and when he took them out of the barrel in the spring they were all right, and had eaten the wheat under the hive until the bran was two or three inches deep.

J. D. Whittenburg.

Marshfield, Mo., March 3.

[Friend W., your story sounds pretty strong, and yet it may be true. When bees are destitute of pollen they will take hold of a great variety of substances; and as they eat wheat flour with avidity when put out in the open air, it is possible that they learn how to dig the flour out of the wheat and thus raise brood.]

PAINTED CLOTH AN EXCELLENT SUBSTITUTE FOR TIN.

I see there have been some inquiries in regard to painted cloth for hive-covers; and not seeing any thing from any one who has used painted cloths, I venture to give my experience with it. Four years ago I was making some chaff hives; and not having lumber wide enough for half the roof, I used narrow boards and painted them. Then I tacked on some Atlantic A sheeting on the green paint, then painted the sheeting. I have painted them once since. They have been exposed to the weather, winter and summer, ever since, and I consider them good for a good while yet, so far as the cloth is concerned. In these times of high tariff on tin, I think it would be well for those who use tin for hive-covers to try a few cloth ones and keep them painted. If they do, I think they will be pleased with the result. I also believe it would make a better roof for dwellings than a good deal of this roofing that is advertised. If Dr. Miller will try painted cloth he will find it far superior to oil cloth. John Anderson.

Oriskany Falls, N. Y., Feb. 28.

[You have given just the fact we wanted. Now, who else can testify? So far the evidence shows that painted cloth will answer. But the great thing in its favor is cheapness, tariff or no tariff. Painting the wood first, before the cloth is tacked on, might have the effect of gluing it so firmly to the wood that it would be less likely to receive tears or injury.]

MICHIGAN APIARIES; STATISTICS FOR 1889-'90.

According to the Michigan Crop Report of Jan. 1, 1891, the farm statistics for 1889-'90 returned last spring by supervisors furnish the following figures: The number of apiarists in the State in the spring of 1890 was 5903. The number of colonies of bees on hand in the fall of 1889 was 77,602, and the number at the time of taking the assessment last spring was 68,404. The number of colonies wintered in cellars was 17,169; in chaff hives, 28,424; in bee-houses, 566; covered with sawdust, 316; otherwise protected, 1810; with no protection, 21,987; protection not reported, 7330.

In 1889, 68,440 colonies made 1,192,112 lbs. of comb honey, and 23,349 colonies produced 271,564 lbs. of extracted honey. The number of lbs. of wax produced in 1889 was 9625.

Compared with the statistics of the previous year there is an increase of 1416 in the number of apiarists; of 23,744 in the number of colonies on hand in the fall, and of 22,891 in the number on hand in the spring. The quantity of comb honey produced in 1889 was 632,310 lbs. greater than reported for 1888, and the quantity of extracted honey was 173,964 lbs. greater in the latter than in the former year.

Concord, Mich. Manly Shotwell.

[There (if reliable, and we should think they were not far from right), these statistics are interesting and valuable. What is the reason that other States don't do likewise? If they did we could then know pretty accurately the number of colonies, etc., in the United States. On an average, then, each Michigan bee-keeper owned, in 1890, 13 colonies. In 1889 he secured on an average, from each colony, 17 lbs. of *comb* honey and 11 lbs. of *extracted* per colony, or 28 lbs. of honey in all; but 1889 was a rather poor season all over the country, especially for Michigan.]

THICK TOP-BARS USED SUCCESSFULLY FOR EIGHT YEARS.

There has been considerable said in Gleanings for and against heavy top-bars. I will give you my testimony in favor of them. When I commenced bee-keeping I made twenty-five hives, all with heavy top-bar frames. With the increase of my apiary, and other work, I did not have time to make the hives I wanted, so I ordered 30 Simplicity hives, so I had two kinds of top-bars. The heavy were ⅞ by 1 inch, spaced 1⅜ from center to center, with ⅜ space between frames and super. I used it six seasons and never was bothered with burr or brace combs. The light frames were spaced the same; and when I took the super off the first hive, the whole of the brood-chamber came with it. In taking off some of the supers I had to lift them up with one hand, and pry the frames loose from the super with a screw-driver. W. J. RUSSELL.

Philmont, Kan., Feb. 8.

[You have given one valuable point; viz., with thick top-bars one inch wide by ⅞ inch thick, even with as large a bee-space as ⅜ inch, no burr-combs will result, even after 8 years. We now know that, by reducing the bee space to a scant quarter-inch, and using fixed distances, top-bars as thick as ½ inch will do, or possibly less. Let those who do not like those extra-thick bars, use a lesser bee-space and note the result.]

REGULATING SPEED BY THE SLIPPING OF THE BELT.

On page 33 you give the experience of one of your boys in changing the speed of machinery. Is not that plan rather hard on the belt, as the change in speed must be caused by the limited amount of belt contact with driver? The driver being constant, the belt speed must be the same, or nearly the same, and the loss in speed must be due to the slip and consequent greater friction on one edge of the belt, which would mean a shorter life for the same; and while it might answer for a temporary expedient it would look to a man in the woods as though the true economy would result in putting in the cones. A. R. KIBBE.

New Richmond, Wis., Jan. 7.

[We have regulated the speed on one of our presses—a small one—with a slipping belt, as described in GLEANINGS, for over 10 years, and the same belt is in use yet. We have adopted the same arrangement on a larger platen press —a half-medium—with entire success. The secret lies in the fact that low speed and small power are required. Cones would certainly have to be used where something over one-horse-power work or high speed is required, or on lathework for screw - cutting. For small presses the slipping of the belt answers perfectly.]

A LADY WHO NOT ONLY DOES NOT WEAR GLOVES, BUT WORKS AMONG THE BEES WITH BARE HANDS AND ARMS.

I see in GLEANINGS that you wanted to hear from other ladies who work among the bees. I put on a hat and veil, push my sleeves up as far as they will go, so the bees can't go up inside of them. They are not so apt to sting my arms with my sleeves up as with them down. A few stings on the hands and arms will get well anyhow. I don't wear gloves, for I want my hands free from any thing of the kind.

I think if Miss Wilson will get some heavy jeans and make an apron, the honey will not run through and soil the dress. It might be "bunglesome" and warm. I do all kinds of work that are done among the bees, and help put up supplies; in fact, every thing but nailing up the hives. I do almost all of the painting and all of my housework—washing, and every thing. I have four small children to tend to. MRS. S. D. COX.

Washington, Ind., Feb. 20.

[Very good, Mrs. C. I, too, should prefer to have my hands and arms bare of every thing, providing I could work with bees when they are gathering honey, and every thing is peaceful and quiet. One who sells bees and queens, however, and is therefore obliged to overhaul hives both in season and out of season, could not well manage in the way you suggest.]

ANOTHER CLAM-SHELL IDEA; USING SHELLS INSTEAD OF SLATE TABLETS.

My plan for keeping record of bees is to use two half clam-shells instead of a slate. I keep one on the front of each hive, in which I write the age of the queen and such other data as I want to go into my book. In the other, on the back end of the hive, I write work done and when, condition, etc. I use a leadpencil, and when a shell is full I pick up another, or rub out with a wet cloth or sponge, and begin again. I live immediately on Lemon Bay, where clams are more plentiful than any thing else (unless it is fish), and clam-shells are not expensive. They are not flat, like a slate, being rounding, but are just as smooth inside, and as nice to write in. I turn the flat (or open) side down, which lies snug on the hive-cover, so that no water nor any thing else can get under them. They are light, not much in the way, not easily knocked off, and are rather pretty than otherwise. J. H. HILL.

Venice, Manatee Co., Fla., Feb. 21.

WHY JAPANESE BUCKWHEAT IS SUPERIOR TO THE SILVERHULL.

I find the Japanese buckwheat superior to the silverhull. After a trial of three seasons I have concluded to sow no other kind. One great advantage it has in this country is, that we can raise a crop early in the season, and the bees have the benefit of the blossoms when they need them so much. In the fall they do not work so much on it because they seem to prefer to gather from heartsease. I raised two crops last season—light crops, of course, on account of dry weather, but it proves that the season is long enough to raise two good crops if there is enough rain. The common kind did not fill any earlier in the season. It will also make more flour per bushel. The miller said it was softer and ground finer. There is, however, one drawback—it is not inclined to grow as tall as the other variety. J. T. VAN PETTEN.

Linn, Kan. Feb. 10.

A SMALL YIELD OF JAPANESE BUCKWHEAT, BUT REMARKABLE UNDER THE CIRCUMSTANCES.

My Japanese buckwheat made only ten bushels to the acre, but I thought that was good, for it never had a drop of rain after being sown until cut. My bees did fairly well, but it was so dry they kept the drones all killed off. Such a thing I never saw, and I almost had a notion to accuse the honest little fellows of killing some of their *queens* in the terrible dry spell. I lost ten or twelve for some cause, and had to give them brood and eggs three times. It seemed as if they would hatch a queen all right; but they did not get fertilized.

Wichita, Kan., Feb. 9. EDWARD HIATT.

ALSIKE VERSUS OTHER CLOVER FOR WITHSTANDING FROST.

My alsike clover came through in good condition last spring, while seven acres of June clover, sown in the same field, in another part, mostly heaved out. It was all on the same kind of ground, and sown at the same time, under the same conditions. Alsike grew too rank for seed. It produced two tons per acre.

A SPORT FROM JAPANESE BUCKWHEAT.

Bro. Root, I have something new to tell you in regard to buckwheat, which will surprise you. When I was cutting the acre of buckwheat I grew from the half-bushel of Japanese I bought of you in 1888, I found one enormous plant, different from the rest, the straw being a little lighter in color, with more than twice as much grain on it, apparently a hybrid. The berry was darker than the regular Japanese. I saved it separate, and got 3500 from this one plant, while 1500 was the very most I could get from any one of ten of the Japanese. I discarded all the rest. I sowed it by itself in 1889, and harvested one bushel. I sowed that on two acres, away from any other, and harvested 100 bushels. Inclosed find sample, which I have named Martin's Prolific. I will sow no other kind another year. **Wm. Martin.**

Cass City, Mich., Dec. 26, 1890.

[I will say to our readers, that friend Martin wished to sell me the seed mentioned above. I advised him, however, to offer it for sale at a moderate price, and let the readers of Gleanings test it on a small scale. If it is really superior to the original, it will soon make itself known.]

JAPANESE BUCKWHEAT.

I think the Japanese Buckwheat takes the lead of any other variety. I bought four pounds of you last spring, and sowed it on an eighth of an acre, and harvested from it this fall 6½ bushels. Who can do better? It was sown on loamy land, greensward, with a light sprinkling of manure. **P. W. Smith.**

West Braintree, Vt.

EIGHT VS. THE TEN FRAME L. HIVES FOR THE ROCKY MOUNTAINS.

May I ask through Gleanings whether eight-frame hives are satisfactory in the Rocky Mountain region? The length of time a colony must depend on its stores extends from September to the middle of May, and I am of opinion that stores less than can be made in a ten-frame brood-chamber will not last through; and that these, being short, the breeding will be correspondingly limited. My own experience is, that the largest hives yield by far the greatest amount of super honey in the season. I should like to know whether this is exceptional in Colorado and the Rocky Mountain district generally. **J. A. Ferguson.**

Loveland, Col., Feb. 10.

[There are some localities where the 10-frame L. hives are better than the 8-frame, though for the great majority of localities the smaller hive is preferable. It can, of course, be made larger by adding another story. The 8-frame hive would be the better one for most localities among the Rockies.]

THE IMPORTANCE OF KEEPING COLONIES FED UP JUST BEFORE THE HARVEST.

I made a blunder last spring, there being no bloom for the bees until clover. I fed a good deal, but not enough. In colonies not having enough feed, the queens quit laying in some ten days before clover came. Colonies that had plenty of feed, gathered, some of them, as high as 80 lbs. to the colony, while others that had not the proper amount of feed hardly gathered enough to winter on. **L. H. Robey.**

Worthington, W. Va., Feb. 20.

BEES EATING LARVÆ AND EGGS, AND THE REASON WHY.

I noticed in Stray Straws, by Dr. Miller, that he is puzzled about bees eating eggs, and the remedy for it. Last fall, a few days after the first heavy frost, I examined my bees and found that the weak colonies that had been raising brood had eaten the white larvæ, but I saw no traces of their having eaten any thing else, because I did not look further. Each larvæ was about two-thirds eaten; the rest were disappearing later. *Cause.* It is evident to me that they were surprised by the cold, and concluded to get rid of the brood by eating it up, as they could not keep all of it warm enough to hatch, and possibly to use it for food. I noticed that only the brood around the outside of the brood-chamber was eaten, and the entrance entirely open, letting all the cold wind in. I afterward started them to laying by almost closing the entrances and feeding. Don't you think they would eat up bee-eggs under similar conditions? Dr. Miller did not state at what time of the year he would expect the eggs to disappear, nor when the queen was taken away. **Geo. E. Fradenburg.**

Kansas City, Mo., Feb. 23.

THE DOOLITTLE METHOD OF QUEEN-REARING A SUCCESS IN CALIFORNIA.

We are rearing nearly all our queens from the artificial cups, and, as a rule, have from one-half to four-fifths of them built out in good shape. We are not having as good success with them this spring as we did last summer and fall; but we hope feeding will make it all right soon. We may report results a little later, as we are a little short of queens for the early orders, and are rearing all queens by the grafting process in upper stories, and count on getting most of them by using the cups. Friend Doolittle also spoke of its being hard to get a queen mated from an upper story unless there was a good honey-flow. We had one mated in November, but she was in a third story, there being two queen-excluders between her and the laying queen below. **H. P. Luther.**

Redlands, Cal., Feb. 16.

YOUNG BEES IN SUPERS REMOVED.

I should like to ask, when you take off surplus and carry it three or four rods to get out the bees, what proportion of them will be young bees that never will get back to their own hive? **J. B. Whiton.**

Ithaca, Mich., Jan. 13.

[Friend W., I should say there might be ten per cent, possibly twenty, that would not find their way back. If there are other hives around, however, where they can hear the bees humming at the entrance, these young bees will get into them, and will perhaps do nearly as much good there as in their own home. I think, however, I should prefer letting them go back where they came from.]

ASBESTOS PAINT FOR HIVES.

In Gleanings for Feb. 1, page 107, we see an article cautioning us against a paint made by the Indiana Paint and Roofing Co. Have you ever known any thing of a paint known as asbestos, as to how it compares with lead?

Buffalo, N. Y., Feb. 9. **A. W. Lindsey.**

[We have heard the asbestos paint talked about, but can not now remember whether it turned out favorable or not. Perhaps some of our readers can tell us about it.]

HIVES FOR HATCHING CHICKENS.

I should be pleased to learn through Gleanings whether any one ever used a hive of bees for the purpose of hatching chickens, or am I the first who discovered it, or "hatched" the idea—which? **George James.**

Willoughby, N. S. W.

[Yes, some of our neighbors have been using some of our old hives, too old for bees—which we sold them cheap for hatching chickens. They reported that they were just the thing.]

PAINTED MUSLIN FOR HIVE-COVERS; AN ILLINOIS MAN SAYS HE HAS USED IT FOR FOUR YEARS, AND WANTS NOTHING BETTER.

In GLEANINGS, Jan. 15, you want to know whether painted muslin on covers of hives will be as good as painted tin. For 4 years I used painted muslin on my hive-covers; and my experience is, that you can find nothing better. It keeps the inside of the hive dry in any kind of weather. Paint and muslin will stick to the wood during the severest cold or warm weather. You never want to re-cover the hive; but every two years give it a coat of paint. But it will be better, where, instead of nailing, the muslin is pasted on the cover. Put the paste on the cover, then lay the cloth on; brush over with a hand-broom; cut the sides off with a sharp knife before they are dry; and, when dry, give two coats of paint. The same can be done with outside winter cases. I have muslin on the roof of my honey-house, and partly on my hen-house.

And now, friend Root, let me make a suggestion about muslin on warm or cold bed-frames. You have several objections to muslin-covered frames, and you are quite right so far; but if, before you nail the muslin on the frames, you nail a piece of poultry-netting (say four-inch mesh) on, muslin over the netting, it will not make the frame much more expensive or heavy—just heavy enough so that it can't be blown about; and during a rain the cloth will not form a water-basin in the middle. I am going to try it this spring; and if you think it over you will perhaps do the same.

HENRY SCHWERDTFEGER.

Lincoln, Logan Co., Ill., Feb. 3.

OLD KEROSENE-CANS FOR CALIFORNIA HONEY, AGAIN; A HINT TO CALIFORNIANS.

I see by GLEANINGS that the honey-producers of California are complaining that buyers of their extracted honey want new cans. Let me tell them how old cans lost them one sale. I sold nearly all my honey by Nov. 15, and wrote to a commission house in Philadelphia for white-clover extracted honey. I said I preferred eastern clover to what they called California white clover. When it came it was in old rusted tin cans, and they had the word petroleum stamped in the tin on the top. No names nor marks were on the box. The honey was light amber, but had an ugly taste. I couldn't eat it, and would not offer it for sale. I returned it. The color was such that the honey should have been good in flavor.

About how many pounds of paraffine wax will it take to wax a barrel, one head out?

Pottstown, Pa. W. W. KULP.

[These old square 60-lb. kerosene cans have done a great deal of damage to California honey—not that *all* California honey is tainted by a trace of kerosene; but the fact that *some* is, operates against the honey put up in new clean cans from the same State. The bee-keepers of California should either use new cans or else thoroughly cleanse old cans with an alkali, as explained in GLEANINGS, page 71. Use for barrels, about 10 lbs. wax or paraffine. Of course, you will not need that much for a single barrel, but you need that much to keep hot while rolling the barrel about. While you are about it you can wax several barrels.]

SNYDER'S METHOD OF CARRYING BEES INTO THE CELLAR.

In Ernest's Notes of Travel for Feb. 1, Dr. Miller says he can not carry hives of bees into the cellar without bottom-boards, and Ernest admits trouble may come occasionally from hybrids. Now, if Dr. Miller or any one else will do as I do he will not carry those bottom-boards into the cellar, nor have any trouble from bees flying out. Let me first say right here, that I carry my bees into the cellar alone, as I have never found a man for a helper who was as good as I am alone. On a cool afternoon, when no sun is shining, I go to my hives, put a half-inch block under each corner, and in less than an hour they are in a good cluster. I then take my strap and hooks, pick up my hive and walk off with it to the cellar; and very often I have to raise the enamel cloth to see whether the bees are alive or not. In 7 years I have not had the least bit of trouble in putting them in or carrying them out. My bees are hybrids from the blacks, Italians, and Cyprians.

RUBBER GLOVES BETTER THAN ANY THING ELSE.

If Miss Emma Wilson *must* wear gloves, I would advise rubber by all means. We have used them in our family for 8 or 9 years, and like them better than all other kinds. Kid gloves or dogskin come next; I would not use buckskin, for the bees will sting them, and most of the time will lose their lives. There is but one fault with rubber gloves so far as I know; and that is, the fingers are too long. I like to use aprons when I am working with the honey, and I feel proud when I am covered from my neck to my slippers with a nice clean one.

Orion, Wis., Feb. 10. FRED. L. SNYDER.

A COLONY OF BEES WHICH SECRETE NO PROPOLIS.

I have an anomaly in the bee-line. I have a strong colony of hybrids whose mother is a pure Italian, if I can judge by the markings. The bees use, in a manner, no propolis. They gave me two well-filled 28-lb. cases, T supers, from white clover. These were removed at the end of the flow, and replaced by a super reduced to 14, which remained on until late in the fall. Upon neither was any propolis. On the first, the white clover, they were absolutely spotless; on the latter, removed in the fall, only a bare trace, not to be observed except by scrutiny. Query: May I expect a continuance of this good quality the coming season? If so, may I expect queens raised from this queen to furnish brood having the same peculiarity? I would attribute this to want of time by reason of the flow; but all other colonies in the yard found time to glue things pretty freely. We have an abundance of the coniferæ in this region.

Guys, Md., Feb. 2. WM. S. ADAMS.

[We hope that you will answer your inquiry yourself, friend A., by trying some queens from this non-propolis mother. Just as soon as you know the results, please communicate the facts at once to GLEANINGS. *We* should like to know whether it is possible to breed a non-propolizing race of bees. But, hold a minute! Those colonies that daub propolis worst are generally excellent honey-gatherers, and usually come through the winter in splendid condition. There is this much for propolis. It seals the hives air-tight—a thing quite necessary in the production of comb honey, and for successful wintering.]

ONE TON OF HONEY FROM TEN HIVES.

There was a great honey season here last year. I took one ton of honey from ten hives, and then had them in good shape for the winter. How is that for an A B C man? That is more than you have ever done; but I tell you it kept me busy all my spare time.

JAMES ROBINSON.

Buffalo, N. Y., Feb. 19.

QUESTION 175 RECONSIDERED.

Friend Root:—Your respondents to question 175 do not take into consideration cool falls or a cold climate like this, which very seriously interferes with the building of comb in supers. I have never been satisfied with my yield of comb honey from fall bloom unless the season was an exceptionally warm one. The bees will gather the nectar, and store it in the comb furnished them when they can not draw out foundation in supers. For this reason I am buying an extracting outfit, and will run my apiary for extracted honey after basswood closes.

THE HOFFMAN FRAME.

I shall order the Hoffman fixed frame, as I am thoroughly disgusted with the loose hanging frame in the Dovetailed hive. The division-board which goes with the frame is a necessity in every hive. Your addition of follower and wedge in the super will make it perfect, in my opinion. At our last State Fair there was not a good super on exhibition.

N. P. ASPINWALL.

Harrison, Minn., Jan. 7.

THE WISCONSIN CONVENTION.

I inclose a clipping from a Madison paper, showing a little of the business done at our convention, Feb. 4 and 5.

Officers of the Wisconsin Bee-keepers' Association have been chosen as follows: President, C. A. Hatch, of Ithaca; vice-presidents, T. E. Turner, of Sussex, and Ochsner, of Prairie du Sac; recording secretary, H. Lathrop, Browntown; corresponding secretary, J. W. Vance, Madison; treasurer, M. J. Plumb, Milton. The association decided to ask the legislature for an appropriation of $1000 to enable it to make a proper showing of Wisconsin honey at the World's fair, and otherwise advance the interests of the industry. It was also decided to secure the incorporation of the organization under the State Law.

You remember what a jovial time we had a year ago when you and Dr. Miller were with us. Our meeting this year was not as largely attended, nor was there the same enthusiasm. Our Wisconsin bee-keepers suffered a failure in crop last year, and doubtless many of them did not feel able to attend the convention. We had the great good fortune to have with us Mr. Thos. G. Newman, who made not a few friends for the Bee-keepers' Union, in whose behalf he addressed the convention. Notwithstanding the small attendance, we believe that business of great importance was transacted.

HARRY LATHROP.

Browntown, Wis., Feb. 11.

JAPANESE AHEAD OF ALL.

I now put the Japanese buckwheat ahead of all others. I sow it at three different times—June 15, June 21, June 29. I raised the largest yield from that which I sowed June 29. On 3 acres I sowed 1½ bushels of Japanese buckwheat, which I got of A. I. Root, and on the 3 acres I had 74 bushels, making 24⅔ bushels per acre. As to bee-pasture, they worked from sunrise till 10 or 11 o'clock P.M. I will raise no other.

J. S. BUIERS.

West Brownsville, Pa., Feb. 8.

ALFALFA FOR SORE THROAT, AGAIN.

Seeing in last GLEANINGS how good alfalfa is for a sore throat, I will say a peddler, who stopped this week, had a very sore throat. I fed him on the alfalfa honey, and it helped him at once. It works like magic. I tried it on myself yesterday, and it cured me at once. This certainly is a valuable discovery, and ought to be in the home of every family. My bees are wintering finely so far.

EDGAR BRIGGS.

Manchester Bridge, N. Y.

A GOOD REPORT FROM CALIFORNIA.

Bees are a new thing to me, as I never had any thing to do with them till last April; then I had one swarm enter at one side of a cracker-box. The year before, the bees and I had made an agreement, that, if they would let me alone, I would let them alone. We kept that compact till last April, when I transferred them to a frame hive and commenced to build up an apiary. I will tell you how I succeeded. We commenced taking bees out of the rocks in the mountains. We took out 17, and ran our apiary up to 31 strong swarms. We had 13 new swarms come out, and sold $93.95 worth of wax and honey, besides what three families used. It seems strange to read in GLEANINGS about feeding sugar and packing them away for the winter. Here our bees are as busy as at any time of the year to-day. I tried to time a colony that was going in loaded with pollen, but I could not count fast enough. They would alight eight and ten at a time. The manzanita is in full bloom now, and will last about six weeks.

JOSEPH W. BELL.

Valle Vista, Cal., Jan. 19.

HOW I MANAGE MY HOME MARKET.

On page 55 is a letter from J. Handle, complaining of others supplying the home market after he had built it up. I have built up all the market for honey there is in Braceville, and have sold all I had to sell here, and could have sold more. I have had no trouble in the line he complains of. I furnish each dealer with a small show-case. The dealers here won't handle honey without a case, and they would not put other honey in my case. That helps to hold the trade here.

JOHN BURR.

Braceville, Ill.

WHEN TO SPRAY FRUIT-TREES.

There seems to be a threatening evil to our bees from spraying fruit-trees when they are in blossom. Could there not be something done to prevent it? I take the *Farm Journal*, and that advocates very strongly the spraying of trees. Would it not be well for some one to write to the editor of that paper, and tell him to inform the people when to spray them—when the blossoms are falling? The *Farm Journal* has a large circulation throughout the United States.

GEORGE BAKER.

Poplar Ridge, N. Y., Jan. 16.

FROM ONE TO FOUR IN 30 DAYS.

Last summer I had a swarm shipped to me the 19th of April. They swarmed the 31st of May, and again the 27th of June, and the young swarm swarmed the 30th of June, so I got three good young swarms from one.

W. F. NAYLOR.

Wrightstown, Minn., Dec. 22.

THE EFFECT OF IRON UTENSILS ON WAX.

I bought some 50 lbs. of dark-colored wax some years ago, supposing that I could clean it; but I found it permanently colored, being rendered in an iron kettle, and left to stand therein for weeks, so it is not salable.

Hayesville, O. H. BUTCHER.

Please tell me what causes the bees to cut up the comb.

J. P. H. WILSON.

Temple, Tex., Dec. 29.

[If your combs are spaced too close, the bees would be likely to gnaw away the comb. Space 1⅜ inches from center to center—not closer than 1¼ inch. Where robbing is allowed to get under a good headway, the combs of the robbed colony are liable to be torn into.]

MY REPORT FOR 1890.

I sold 318 queens, and spent $18.00 in advertising. My receipts were probably meager for the amount spent in advertising, but I have not a dissatisfied customer, nor a queen reported impurely mated. Many have wondered, and some have asked, "How are your books since you advertise 'to be paid for on arrival'?" I am glad to say I have found bee-keepers, as a rule, "gilt edge," and the best class with whom I have ever dealt; and the result is so satisfactory I shall advertise that way again another year.

THE HONEY CROP

the past season was short, and from 100 colonies I received 1200 lbs. (half comb, half extracted), which sold on an average at 15 cts. per lb. Late in the season, owing to frequent fall rains and mild weather, there was a profusion of bitter-weed from which the bees filled their hives for winter stores—something that has not occurred in several years. The honey is very unpalatable, but has a good body, and is about as dark as Spanish needle. The bees are wintering well, and on the 29th of December they were bringing pollen from elm. The discussion on closed-end frames has caused me to decide to use them with all new swarms another season. W. H. LAWS.

Lavaca, Ark., Jan. 16.

RIPENING OF HONEY NOT ALWAYS A PROOF AGAINST CANDYING.

In friend Beach's article, page 780, 1890, he says if the weather is warm and dry while honey is being gathered, and remains so until it is thoroughly ripened and sealed, in his opinion it will rarely ever candy. If friend B. had seen what I did last summer he would have talked different from that. The month of July, 1890, was very warm and dry here. Our bees at that time were working in the pine-forest and cotton-fields. The honey (or sugar, if you choose) would granulate just as fast as it was brought in. It was impossible to extract it, as it was just a thick mush. All the way it could be used was to cut it out in the comb, or use it in the building of new colonies. It is needless for me to say that this honey was as good and nice for the table as any honey ever raised. Friend B. also says we know when cotton honey is coming in, by the pollen on the bees' backs. If he will notice when bees are working on cotton he will see that very few bees go inside of the blossoms, or at least they do not in Mississippi. The honey is obtained from the outside at the base of the bloom. J. R. CLEVELAND.

Decatur, Miss., Jan. 27.

CLOSE SPACING AND FIXED FRAMES.

I am very sure that *less* than ⅜, instead of more, between the bottom-board and the bottom of the frames, is very important. If more, the bees must go up some other way; and, besides, there is much valuable time lost by the bees by too much space at the end of the frames; and for me I want every frame full clear to the bottom, so as not to allow any loafers. I know what it is to move hives in and out with frames loose or fixed, to say nothing of the trouble of taking off cases from loose frames. I shall use none but fixed ones of some sort, in the future. It is a wonder there are any in use except fixed. It's too much on the guessing-at-it plan.

Hallowell, Me., Jan. 15. E. P. CHURCHILL.

WIDTH AND THICKNESS OF TOP-BARS.

On page 888, 1890, Dr. C. C. Miller gives us a talk about the thickness of brood-frames and the building of burr-combs; and in Ernest's remarks following, he asks for information of others as to whether brace-combs are sometimes built through the honey-board, as Dr. Miller explains. I have had some experience with thick frames; and if you can profit by an A B C scholar's experience, here goes. When I first turned my attention to bees, about three years ago, I had no foot-power saw to make frames with, so I had to make them by hand. I made them the same dimensions as the Langstroth, described in the A B C, with the exception of the top-bar. I made this ⅞x⅞, so as to have a shoulder at the end to nail the end-bars to. Now, with these frames I have little or no trouble from burr-combs or brace-combs either; and I am inclined to think that a wider frame would be better. In fact, I think if the top-bars were wide enough, after being spaced they would be queen-excluding; and then we could, I think, dispense with the honey-board entirely. I am going to experiment with this problem the coming season, and will report. J. H. GOE.

Mossy Rock, Wash., Nov. 26.

OBJECTIONS TO THE T SUPER; WIDE FRAMES PREFERRED.

As I never see any thing in GLEANINGS or the *American Bee Journal* about wide frames, I should like to say a few words in regard to their use. Supers seem to be all the go. I have been using both wide frames and T supers, and I am completely disgusted with the latter. Bees very often build comb between the sections and the top-bars of the brood-frames, and this all has to be scraped off, and the sections are generally soiled or darkened on top by the bees passing over them. Again, you can not take 1, 2, 3, or 4 sections from a T super without taking the whole case off. Now, with wide frames there can not be any comb built on the under side of the sections, nor are they soiled in the least. You can take off sections where wide frames are used, just as you want them; you can take out a frame, fill with sections, and take 1, 2, 3, or 4, and just put empty ones in their places. I have sections in wide frames that have been in them for two years, and I am taking them out now, and they look as bright as they did when I put them in. Who can say this of T supers? W. S. DOUGLASS.

Lexington, Tex., Jan. 18.

[There is no need of having burr-combs or having the T super fastened to the brood-frames if you use a honey-board, or, better still, the right kind of brood-frames, with a bee-space of not more than ¼ inch above. Your greatest objection to the T super can be obviated if our own testimony and that of hundreds of reliable witnesses can be relied upon. But there is one thing which you have mentioned, and which is very true. In a poor season, or for any other cause that sections remain upon the hive for any length of time, the sections will discolor; that is, they will have a soiled, travel-stained, yellow appearance. In wide frames, or even in the section-holders, if an enameled cloth be laid flat (no bee-space) upon the section tops, the outsides of the sections will be clean and white, no matter how long on the hive.]

ONE WHO LIKES THE RUBBER GLOVES.

In answer to Miss Emma Wilson's inquiry in GLEANINGS for apron material, I would suggest oiled silk, if not too expensive. The rubber gloves are nice; and, every time they are taken off, they should be pulled off the hand so as to leave them wrong side out, so as to dry the moisture in them, or they will soon spoil, as they are air-tight. MRS. C. A. STEBBINS.

Churchland, Va., Feb. 5.

OUR HOMES.

What shall it profit a man, if he shall gain the whole world, and lose his own soul?—MARK 8:36.

Friend Root:—You may think it strange of me to write you such a letter as I have sat down to write, and may be you will think I am interfering with what does not concern me; but believe me, I have given it no little thought, and am going to do just exactly as I would wish to be done by under like circumstances. I am a Christian, though I am far from being a perfect one. I know what the power of temptation is, and it helps me to have charity for others who make wrong steps. I think the more popular any Christian becomes, and the more good he wants to do in the world, the more untiringly Satan will work to trip him; and so the more watchful and prayerful he must be.

I will tell you what I refer to. I am a member of the Southern California Bee-keepers' Association, and at our meeting Jan. 8, at Los Angeles, bids were sent in by the various supply-dealers to furnish the association with needed supplies. You will remember you sent a bid, and then added a postscript, saying that, if there were lower bids, let you know, as you could furnish supplies as low as any one.

Now, can you see where that placed you? In the first place, it looked very underhanded and dishonorable; then it looked very grasping, as though you would wish to sell all the supplies used in the United States, or perhaps in the world. A murmur passed through the assembly. Some of them, in speaking of it, said they were "glad to find you out." Others said they "almost knew your spouting on religion was merely for the dollars it would bring you." Now, I do not believe you thought twice before you wrote that postscript. I am very sorry, for I often think that we who are trying to further the cause of Christ are holding it back by inconsistent lives. See Romans 14:21. Yours sincerely,

Redlands, Cal., Feb. 16. H. P. LUTHER.

May the Lord bless you for your kind letter, friend Luther. By no manner of means do I think you are interfering, dear brother; on the contrary, nothing does me more good than plain outspoken words—that is, where they are spoken or written with the spirit that I am sure actuates you in the above. I do believe you are doing exactly as you would be done by, as you express it. Your thought is a grand one, where you speak of having charity for others *because* you yourself know what it is to be tempted. And this is one of the good things about trials and temptations—it keeps us from being overbearing, and judging others harshly. "Forgive us our debts as we forgive our debtors." Your next thought, too, is an important one. It is indeed true, I believe, that Satan *persecutes* and follows more *untiringly* any child of God who promises to become *popular*. When Finney was doing his great work through Ohio and York State, he was once overheard praying by himself out in the woods; and the burden of his prayer was that God might help him to bear *prosperity* in his spiritual work. And I want to thank you again for telling me so plainly and kindly just where you think I am at fault. If you will go back to that letter, however, which was read at the meeting of the association, you will find the expressions you mention were not the words of A. I. Root himself. As all the correspondence, however, that goes out of our establishment is supposed to be authorized by myself, I accept the responsibility, and the rebuke that comes with it. Let me say, however, in extenuation, that there are circumstances connected with this matter which I think your association failed to take into account. In the first place, we were asked to make a bid as early as the *first of January.* In fact, the letter referred to is dated Jan. 1. Now, at this early season, in this locality, we can not tell very well what we *can* do. We do not know what the winter will be in affording suitable weather to move logs. We do not know how many are going into the supply business before spring; neither can we tell definitely what the demand is going to be. Perhaps in our bid we should have suggested something like this, and added that we might be able to do better a little later on. I have looked up the letter you refer to, and the postscript, which reads as follows:

> "If our quotations on sections and some other items are not as low as you have received from some other party, we should like another opportunity for a bid. We think, taking it all around, we can furnish you goods that will please you as well as, or better, than any other."

Now, if it were only one individual who objected to the above, I should be inclined to accuse him of a lack of charity. If, however, it was the voice of an association, perhaps we had better conclude they were right; for I have great faith in the old saying, that "the voice of the people is the voice of God." Permit me to say here, that the writer of the above is our business manager, and my son-in-law; and to Mr. Calvert is due, perhaps more than to any other one person, the fact that our business has, within a few years, extended and enlarged so that our goods now go to almost every habitable part of the earth. Mr. Calvert's special forte seems to be in compassing the whole earth; and he has a gift that I have never seen equaled for keeping in hand, and under his eye, business transactions not only of great magnitude, but scattered here and there until an ordinary mind would become utterly confused and demoralized. Please, dear friend, remember that Mr. Calvert, like you and myself, is a follower of Christ Jesus, and an enthusiastic supporter of missionary work throughout the world, and one who gives so liberally of his earnings to these causes that I often feel like rebuking him. Now, let us remember that we all have our special individualities. Mr. Calvert does not write nor speak in that peculiar way your old friend A. I. Root does; but I am sure he *feels* just as kindly to his fellow-men as I do. Perhaps I may say, without any thought of boasting, that God in his mercy and love has seen fit to give your old friend a *peculiar* gift in talking to people, and in getting acquainted, and especially in *making* friends; and it often happens that those who have done business with me, and corresponded with me for years, notice the difference when the magnitude of our business obliges me to delegate to others the task of dictating correspondence. Both Ernest and John say, and with justice in their favor too, that it is impossible, with the present amount of business, to explain at length in the way I have been in the habit of doing with my friends. No other business house does it. In fact, when *any* business begins to assume large proportions, people are obliged to take for granted many things or to "read between the lines" as it were. As an illustration: When goods decline in value, every good business house should, as a matter of course, make the price lower to customers, and I believe this is generally done. When the recipient finds that the goods do not cost what he expected to pay, he does not demand a letter of explanation. He takes it for granted that there has been a decline in price, but he does not find fault, even if no explanation is made.* On the other hand, suppose goods advance. In this case I *do* think that every dealer should make at least *some* sort of brief explanation, even if it be a class of goods that is going up and down in value almost constantly. But yet a good many do not do this, relying upon their notice that certain goods are liable to advance without notice. At the present time we are having considerable jangle because alsike is $9.00 a bushel instead of the price printed in our circulars last fall. We write our customers, again and again, that we gave notice of the advance in our January GLEANINGS; but quite a number stubbornly insist that they got the price out of our catalogue—$7.50, and some say they will not pay any more. You may suggest that we should have written to them of the advance before filling the order. But suppose the proper season for sowing the seed is at hand, and the man wants it right off. Then delays become expensive. Now, if it were possible for me to write a pleasant letter, explaining with every such order when goods advance, I could almost always prevent hard feelings. But, dear friends, it is absolutely beyond my strength or power.

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*A letter has just been placed before me, illustrating so well the above, and at the same time paying a just tribute to our friend Mr. Calvert, that I have thought best to give it here in a foot-note:

MR. ROOT:—Your letter of the 28th is received, in which you say you give me an extra credit of $1.65, because the goods had become so much cheaper, for which please accept thanks.

Every few days I come to the verge of overwork, and sometimes this overwork is in consequence of trying to pacify some offended customer in a matter of less than a dollar—sometimes, in fact, only a few cents. He will have it that we are greedy and grasping, and that "A. I. Root's religion is only a shrewd scheme to get hold of the dollars," as you express it. I have made all this explanation to let you see how impossible it is for me to dictate all these letters in regard to business.

Now in regard to the postscript I have given above. I presume that, if I had written that clause, I should have made it something like this:

"My good friends, at this date, Jan. 1, it is hard for us to tell exactly what we can do. We do not dare, at present, to give the close figures we may be able to give a little later when we see how our supply of basswood turns out. If our good friends at the convention do not insist on having exact figures right off now, we should be glad to hear from you a little later; and if you do not think it out of the way, we should like to have you tell us what bids you get, before you close the bargain with any one."

Well, the above is *in substance* just what Mr. Calvert wrote you, only it is told in my usual familiar way, instead of in a brief, business-like way as he puts it.

But, dear friend, my spirit moves me. I must say I am completely surprised at your honesty—so much so that I said to my wife, "Well, this man is surely honest enough. Certainly not one in a hundred would give a man the benefit of a lower price AFTER the goods had been sent and the bill made out." Of course, in the seven years I have been dealing with you I have always found you to be square and honest, but I did not expect it to go as far as that. JULIUS JOHANNSEN.

Port Clinton, O., March 2.

Perhaps you may wish to know what has brought forth such extravagant expressions. Well, it was simply something that our friend Mr. Calvert (the very man who wrote the letter to the association) wrote just as he does almost every day. An estimate had been given for some goods, the price agreed upon, order made, and the goods shipped. But a decline in prices (a week later) made it possible to make friend Johannsen's bill a little less; so Mr. Calvert, in a neighborly and Christian spirit, wrote as follows:

FRIEND J.:—As we are getting better prices on Planet Jr. implements, we credit you with an extra discount of 10 per cent on $16.65, the amount charged you for goods which went forward from Philadelphia on the 21st of February. Amount of credit, $1.65. A. I. ROOT.

Medina, O., Feb. 28.

Now, this is the way we are *trying* to do business, dear friends—not because it will prove to be a big *advertisement* to us, but because we love Christ Jesus, and try to live in the spirit of our opening text.

Yes, I know that, as our business increases, these Home Papers are going to be criticised and assailed. I feel that it is all the more because there is springing up all over our land a disposition to feel hostile toward those who handle capital, and who have the attendant power and influence that almost always accompany capital. Here in our own town a bitter spirit often comes up against me because I do not *employ* certain people to the exclusion of others. Of course, these friends do not look from my standpoint, and they do not know the full circumstances of the case. I can illustrate this by a little circumstance that happened only yesterday. On account of a lack of seasoned basswood we were obliged to suspend, for the time being, several hands. One of these came to me and said something like this:

"Mr. Root, will you think it impertinent if I ask you why you stop some of your older hands, and keep others who are no better workmen, and who have come later? Have I done any thing to merit your disapproval, or is there any way in which I can better serve you than I have been doing?"

I assured him that he had not offended me, and I had no complaint to make at all. But I told him the individual we were talking about was a stone-mason by trade, who, during a great part of the summer, when we were at work on our new building, refused to have his wages advanced. As you well know, stone-masons command a higher price than people of many occupations who have work all the year round. One day when I urged the matter, and told him he ought to accept more pay for the work he was doing, he replied something like this:

"Mr. Root, you put yourself out of the way to give me something to do at a season of the year, and at a time when I could find no work, and when I was needy. You have been giving me work every day in the year, whether it stormed or not; and now that you want something done right in *my line*, and I see a chance of doing you a favor, just as you did me, I am going to do it. You need not say any thing more about it. I shall not take any more pay. In fact, I rather enjoy showing you that I can remember a favor."

Now, friends, you see I had most excellent reasons for doing just as I did; and yet the outside world looking on, knew nothing of this; and even if I had the time, it was not my business to explain all my motives for action. In this conflict of capital and labor, I get glimpses of just this very state of affairs. My friends who are lawyers or bankers, or men who have money to let or factories to run, are criticised and called unjust. They are also accused of being open to bribes; and people say nothing can be done except by wire-pulling and "getting inside of the ring," etc. And yet, when the truth comes out they have reasons for their conduct much like the simple circumstance I have given above.

I am afraid, dear brother, that my California friends are disposed to be uncharitable when they say that Mr. Calvert's postscript "looked underhanded and dishonorable;" neither can I see that they were right in thinking it looked "grasping," and that we "wished to sell all the supplies used in the world." A little reflection, it seems to me, should show them that this is not true. Although we have been the pioneers, almost, in many things pertaining to bee culture, we have no patents on any thing. In fact, if any of you want to start an opposition business to our own, and should write and tell us so, you would get a prompt reply, to the effect that we would give you all the assistance in our power. You can come here to our establishment, and take the dimensions of every machine we use. You can bring your "Kodak," and take views of the machinery and appliances that we have been long years in studying up. At the Detroit convention a young friend came to me in a sort of bashful way, and told me he had been making Dovetailed hives to some extent. I assured him I was glad to know it, and looked at the samples of his work. He finally told me that he felt a little ashamed of having copied us in the way he had done, without even asking for the privilege. He then asked me how much *money* he should pay us so that he could go home with a clear conscience, and make Dovetailed hives out of pine-trees that grew on his own farm, for he already had a sawmill. I indulged in a good hearty laugh, and told him I was glad to know they had a man in Michigan who was enterprising enough to make bee-hives out of his own trees. When an opportunity offered, I held a sample of his work up to the eyes of the convention, and told them they could save expensive freights by sending their orders to our friend in question. Now, do you think it was any task for me, or that I found any selfishness to overcome in so doing? Why, bless your heart, no. My temptations do not lie in this direction at all. I have done this thing so many times (I was going to say all my life, but I had better say, since I became a *Christian*) that I have not a particle of fear of the result. I have seen the little text, "Give, and it shall be given unto you." verified so many times right along in this line that I feel as sure I shall not lose by it as I do that the sun will rise to-morrow. The enjoyment of helping somebody who is really honest and hard-working is worth a great deal more to me than the dollars and cents. I have my temptations, like yourself, to struggle with, and scarcely an hour of my life passes without a regular tussle in overcoming some sort of evil. But it is *not* at all in the line of wanting all the business in supplies for every apiary in the world. It is rather, that I want to be *helpful* to my *fellow-men*, and, therefore, I wish to respond with alacrity, and show myself wide awake whenever somebody comes to me with his wants. Do you know how many people there are in this world who fail in business just because of the *half-hearted* way in which they wait on customers? A grocer sits on a chair out on the sidewalk, waiting for customers. By the way, I always feel suspicious of the proprietor of *any* store who thinks he has nothing to do but to wait for trade. The grocer, like the farmer, should always know a *dozen* things that he can do profitably, no matter what the circumstances are. Well, suppose you go to one of these chaps who is waiting for trade to "turn up." You ask him whether he has any eight-penny nails. I have seen dealers who would say, "No, sir, I haven't any," and go right on talking *politics* with his *neighbor*, without another word to his *customer*. What should he do? I will tell you what *I* would have him do. If he really is sitting on a chair on the sidewalk, he should spring to his feet with alacrity, and say, "My dear sir, I am sorry to say that I am just out of *eight*-penny nails; but I have some nice sevens and tens. Just look at them. Perhaps you can make them answer. If the tens are too long, you may drive them a little slanting; and if you drive them first one way and then another, they will hold a great deal stronger than eights driven straight in."

Now, I think this latter is the right way to treat a customer. Of course, you should not hold on so as to detain him. If he says he rather thinks he will go somewhere else to get the eights, don't hinder him another minute. A man who wishes to sell goods should strive to be *accommodating* in the truest sense of the word. He should try to be *helpful* to his customer; and even though some people should say that he acts "grasping" and use such remarks, I do not believe he should alter his plan on that account. *Sometimes*, when I go somewhere to trade I find the clerks overdo the matter in *trying* to make sales. But this does not happen one time in a hundred, compared with the people who are so half-hearted and sleepy and dull in taking care of their business that they *can't* succeed. I have never found more than one or two clerks in my life who would wait on every customer as I would have them waited on. Our successful drummers, who command a salary of from two to three thousand dollars a year, give us a fair illustration of what is wanted. They will find out in a little while what a man wants, and they will make themselves really useful and helpful to him. They will give him hints, and tell him things of value in his business, worth many dollars to him; and they do it just as cheerfully and pleasantly, even if they do not succeed in making a trade at all. A man once came into our machine-shop. He looked over our work and our machinery, and finally showed one of the men how he could have the lathes arranged so as to keep two running instead of one, and finally demonstrated to us so clearly that we could save more than a dollar a day by having an extra lathe, that he made a sale of one worth $150. He was the proprietor of a machine-shop in a neighboring city, and he was obliged to wait here for a couple of hours for the train. Now, he did a stroke of business for himself in these two hours. He also gave us some valuable suggestions in our business that have been worth considerable money to us ever since. You see, friends, there is an extreme both ways in waiting on customers and in looking up trade; and is it not clear, too, that a man may seem greedy where he is only wide-awake, and full of energy and zeal to do with his might what his hands find to do? But inasmuch as the Bible admonishes us to beware of even the *appearance* of evil, we thank our good friend Luther for his timely caution, and promise to be careful in the future about even *seeming* to "want to gain the whole world."

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

FARMERS' INSTITUTES.

We had a farmers' institute in our town on the 4th and 5th inst. Among other things the silo question was discussed. One of Crawford County's progressive farmers stated that he could raise feed enough on one acre to keep a cow twelve months, in good condition. Teaching agriculture in the common schools was discussed at length. Secretary Woodward said, "Put yourself in as boss of your farm; value your services at one hundred dollars per month, and make the farm pay it." Your friend T. B. Terry was present, and delivered an excellent lecture on potato culture. All valued Mr. Terry's remarks highly. It made one feel as though he wanted to plant potatoes right away, after hearing him talk. The bee-industry was touched slightly, and some of our neighbors who have kept bees "nigh onto forty years," gave a few hints on the subject. By the way, friend Root, I think if we could have more such meetings as this it would be a source of health, wealth, and happiness. VERNE FREE.

Townville, Pa., Mar. 7.

TOBACCO AS THE BEST AND CHEAPEST REMEDY FOR BUGS AND INSECTS THAT VEX THE MARKET-GARDENER.

When visiting the greenhouses at the Experiment Farm in Columbus I asked friend Green how it was that they had no trouble with the green fly. He replied:

"Oh! we do have trouble—or, rather, we should have, if we did not keep them down with tobacco."

"But, friend G., will tobacco really do the business when they get well started, and get on the under side of lettuce-leaves, where the plants are thick and large?"

"Oh, yes! I think tobacco will manage the whole business, provided you use enough of it. Let me show you how we do it, and how quick it works."

He took a handful of tobacco dust, and found some radishes where the green fly had made something of a start. He sprinkled it on the leaves, and put on enough to mulch around the plants, and we kept on talking. In just a few minutes he told me to look. Sure enough, the green fly was over on its back in the dirt, and had "turned up its toes." I then began asking where he got it, and what it cost.

"Why, it does not cost any thing. It is the dust they sweep up from the floor at the tobacco-shops, and they give it to us for taking it out of their way."

Now, I had used this tobacco dust before; but mine cost me something like $6.00 a barrel, and we could not afford to use it as liberally as friend G. had been doing. In their reports in regard to the striped bug on melons and cucumbers, I remember they gave tobacco dust as the cheapest and simplest remedy. Sprinkle it on so as to make a mulching perhaps a quarter of an inch deep, right over the hill, so the plants must come up through it, and they will not be touched. If a very heavy rain, however, should wash it off and take the strength from the tobacco, give the vines another sprinkling. Now, where you can get this dust cheap, it certainly is the cheapest, quickest, and easiest remedy to apply that has ever been invented.

SOME QUERIES ABOUT RAISING CELERY.

Will liquid manure do the celery good? What time of the day is best to put it on? Could I not dig a trench, say one foot deep and four feet wide, and lay rails along the side of the pit to raise it just above the tops of the celery, and throw some old boards across, and some straw and some earth on top of it, leaving both ends of the pit open so I could open or shut, according to the weather? Could I not bind a dozen roots in a bunch and ship it on a car, laying it one on top of another, without jamming the celery or hurting the sale of it?

Unionville, Ont., Feb. 15. JOHN J. GRILLS.

[Friend G., the cheapest way to apply liquid manure to celery or to almost any thing else, is to scatter the manure on the surface of the ground around and among the plants; and then when it rains, the water will wash the liquid manure down around the roots of the plants better than anybody can put it on; and it saves all fussing with a barrel of manure, sprinkling-pot, and water. Your plan for wintering celery will be all right if you have a roof overhead that does not let the rain get through, and plenty of straw around the sides to keep the frost out. Most markets demand that celery be nicely trimmed, washed, and tied in neat bunches, and put up in clean, tight packing-boxes. If it is exposed to the air it very soon wilts, and in that case you can hardly give it away. You had better visit some practical man, and see just how he does it.]

CLOTH FOR HOT-BEDS AND COLD-FRAMES.

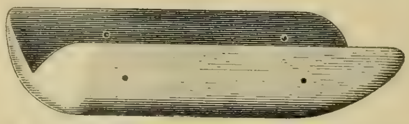
Will you please tell me how to prepare cloth to make it water-proof for hot-beds?

Willow Springs, Mo. J. N. NEWCOMB.

[Friend N., my experience is that I would not prepare it at all. I would rather have plain, strong cotton cloth than any with any preparation on it. The preparation may be a little better for the time being; but instead of preserving the cloth it makes it rot. I noticed that our friend who writes the tomato book speaks of only plain cloth without any preparation. If any of our readers have had experience to the contrary, we should be glad to hear from them. The great difficulty we have in using cloth, say in February or March, is from wind, snow, and rain. It raises the mischief with it, where glass would be undisturbed.]

A HOE-HANDLE ATTACHMENT.

Friend Root:—Haven't you wished a great many times, when you were tired, and perhaps thirsty, that your hoe-handle were not so dry and slippery as to necessitate expectorating so often on the hands? It has been the case with me, as well as of thousands. I often think there is a remedy for such complaints. Several years ago a simple device came to my mind, and I have often thought I would send it to you, and so I send it by mail to-day. Simply nail one on the hoe-handle near the end, the other about 18 inches from that, with ⅞ wire nails. Get them even, and both on the under side. They are first rate on a steel rake, and on all kinds of pronged hoes, and you can use such tools with mittens or gloves on when too cold; and the hoes, etc., won't be the wrong side up. I know from experience that one will not get nearly as weary as when he must grasp with all his might, besides spitting his whole life out, unless he is one of the spitting kind. I know it is a little early to talk hoes, but everybody ought to be happy once; and for so simple a thing it will call out happy thoughts. I am not boasting, but all should be improving and pressing onward. There is no patent on this, and I haven't got rich out of it, in dollars; but my feelings have been elevated by it very much. Please put them on and try them at something. You may see some way to improve them. I simply cut out a square corner, and think they are the right size. In digging potatoes with a pronged hoe, I tell you they are grand.



BLOCK OF WOOD TO BE NAILED TO YOUR HOE-HANDLE.

I have a wheel-cleaner for wheelbarrows, and I can not get along without one on hand-cultivators. You know a barrow-wheel is always rolling up a lot of soil, especially on clay land, such as you and I have. I will send you a sample later, if you wish. By the way, friend R., a large wheel on a cultivator is bad for working close to raspberries and blackberries. I think a 12-inch, as a whole, is the best. I speak unselfishly. E. P. CHURCHILL.

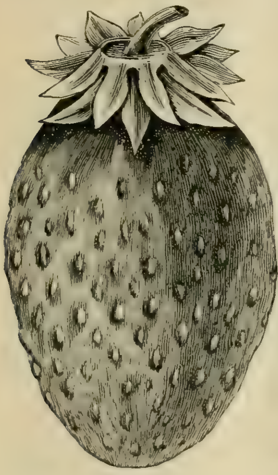
Hallowell, Me., Feb. 2.

[Friend C., with our modern implements, both for horses and for hand use, the old-fashioned hoe is getting to be a good deal discarded, and I think it ought to be. On our place we use rake-hoes a good deal instead. But this implement will perhaps be a help with them as well.

If we could always work our Medina soil at just the right time after a rain, we could dispense with very much of the hard work connected with keeping crops clean. Yes, we have had much trouble in having the wheel to our wheelbarrow clog up after a rain. especially where the load comes close to the wheel. as it ought to do; and we shall be very much obliged to you for a sample of your wheel-cleaner. By the way, friend C., if you have the machinery for making these things (and who else can do it better and cheaper?) you should make them and offer them at a low price by mail. It will be a great deal cheaper for most of us to buy them of some one who makes a business of making them, rather than to try to whittle them out ourselves. If you put them at a low figure we will give you a free notice of them.]

THE BELMONT STRAWBERRY.

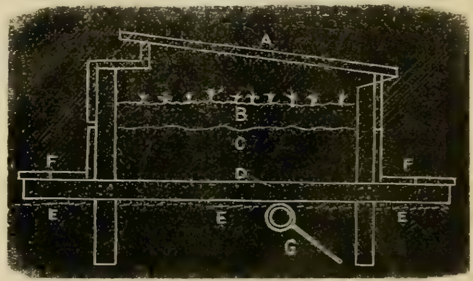
Two years ago a neighbor wanted to swap some choice strawberries, and among them were 50 Belmonts. I very soon noticed that this plant on our soil made better growth, and presented a handsomer and brighter foliage, than any other. I began searching the catalogues to see what they said about it; but I did not find very much in its praise, except from the introducer, several years ago. The experiment station said it did not fruit evenly. Part of a row would give a good crop, and another scarcely any. I judged from this that probably it wanted a very rich soil. But the plant was such an exceedingly fine grower, and so handsome in appearance, that I planted out two long rows at a venture. Well. it has not borne as much fruit, perhaps, as the four I have selected; but the berries we did get were so very handsome, and of such excellent flavor, that I was very much inclined to fall in love with the Belmont. Then its odd shape—the very sight of it is suggestive of "continued sweetness long drawn out," or of a great drop of nectar ready to fall if you don't catch it in your mouth. We are giving it another trial on a larger scale; and if they bear fruit even fairly, I think I shall put the Belmont among my chosen few. The beautiful cut was kindly loaned me by our good friend and veteran strawberry-grower, Mr. John Little. of Granton. Ontario.



THE BELMONT.

COLD-FRAMES AND HOT-BEDS.

Perhaps you would think it a little funny if all my inventing and speculating on greenhouses that can be made "outdoors" whenever desired, should finally come back to the old-fashioned cold-frame or hot-bed. A great many of the plans I figured out would work nicely, only they cost too much money; and then expensive machinery is always in the way when you do not need it. The present result of all my studying seems to be that the cheapest machinery in the present state of our knowledge, for moving sash, is two men—one at each end of the sash. While I dictate this, my eye rests lovingly on a hot-bed 150 feet long, just across the street. We have some beautiful light strong sash. 3 feet 4 inches wide. 6 feet long, and made of 1⅜ lumber. The 8x12 glass, instead of being lapped. have their ends butted together. and all the joints made tight with the putty-bulb and sand. I am not yet satisfied with a place to put the sash when it is not wanted over the plants. What we are doing just now—in fact, what we have just done this morning, is to pile up the sash five high, right on the bed. To do this, the men simply have to take two sash and lay them on the top of a third one; then put two sash from the other side on the same pile. This is very little work, and four-fifths of the bed is uncovered. The next time the sash are handled we will shift them so as to put the pile in a new place every time. When we want the plants to catch an April shower, as soon as the bed is thoroughly wet we shift the piles of sash.



CROSS-SECTION VIEW OF OUR NEW 150-FOOT HOT-BED.

EXPLANATION.—A is the sash; B, soil; C, manure; D. chestnut strip; E. surface of the ground; F. plank to walk on; G. 4-inch sewer-pipe, which should be shown under middle of bed.

To enable the workmen to work easily during wet muddy weather we have two planks for a walk. on each side of the bed. The north side is 8 inches higher than the south; and on an average the sash stand two feet from the ground. The planks for the sides are nailed to short cedar posts five feet apart; and the inside, next to the dirt, is covered with tarred paper to keep out frost. On the north side the cedar posts are sawed off square, and a 2x6 Norway plank nailed flat on the top of these posts. This piece covers 6 inches of the ground inside of the cold-frame, so the plants on the north side will have 6 inches for the roots to go over and under the six-inch piece. When handling the sash it is very convenient to be able to get the ends of your fingers under the sash to lift it up. To do this, each end rests on a strip of pine one each square. With this arrangement for getting under the ends, and the planks to walk on, two smart boys will uncover a 150-foot bed very quickly. The two walls are prevented from spreading by strips of chestnut, nailed from one cedar post to the opposite one. These strips, to be out of the way for spading, are about 18 or more inches below the surface of the bed; and as there is no other connection between the two sides, we can, if we choose, put a horse and cultivator right into the bed, when the sash are out of the way, so as to fine it up thoroughly, much cheaper than it can be done by hand. About 18 inches of manure is put in the bed, and from four to six inches of dirt on top. I am now ready to tell you of another feature of my new hobby.

USING EXHAUST STEAM TO WARM UP HOT-BEDS, GREENHOUSES, ETC.

For some years I have been feeling uneasy whenever I see steam puffing out into the open air from any kind of steam-mills, factories, etc. I have felt uneasy that this vast quantity of heat should not be utilized for warming buildings, or, in the spring and winter, for heating the ground and raising plants. Well, the engine that runs our printing-press and carries the dynamo for the electric lights is only about 150 feet from my new hot-bed. When the bed was made I laid a four-inch tile about a foot under ground, through its whole length, right in the center of the bed. Then with a two-inch iron pipe the exhaust steam from the aforesaid engine was sent into this four-inch drain-tile. I soon found the steam was heating the whole bed, with a large surplus, so I have given it another line of tile about 200 feet long. It has not yet gone to the end of this latter line; but during the last few weeks it has produced the most beautiful and luxuriant growth in rhubarb and strawberry-plants that I ever saw in my life.

Michel's Early, put out perhaps three weeks ago, have made such a growth that they are almost ready to send up blossoms for fruiting. This hot-bed was planned particularly with the end in view of getting our choice varieties of strawberries to put out runners as early as possible, in order that we may have young plants to send out, say in May or June. This will prevent the usual vacancy between plants grown last year and the present; that is, we want to be able to fill orders for plants during the very time when the strawberries are fruiting. For several years we have had orders for plants right during berry-picking. Of course, we can cut off the fruit-stalks and take up the plants; but this results in the loss of fruit, and the plant is not exactly what our customer ought to have, either. We shall see.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

The way of the wicked is as darkness: they know not at what they stumble. But the path of the just is as the shining light, that shineth more and more unto the perfect day.—PROV. 4:19, 18.

THE *American Bee-Keeper* believes that the winter case will be in general use in the near future.

STERLING STRAWBERRY-PLANTS WANTED.

IF you have any for sale, say how many and how much per thousand.

THE APICULTURIST.

THERE is something in the *Apiculturist* that sparkles. It has lots of short, pithy items.

SHEET IRON VS. TIN.

Mr. ELWOOD says that sheet iron is cheaper and better than tin for hive-covers; and, besides, it holds the paint better.

THE TRADE-MARK.

SO far, bee-keepers seem to be against the trade-mark—at least, its establishment in the Bee-keepers' Union, although friend Heddon argues for it.

OUR TYPE-WRITERS.

FIVE Remington type-writers are kept almost constantly going in our office, and still we are behind in our work. We are contemplating putting in a new Hammond.

A KIND NOTICE FROM THE A. B. K.

HERE is a neat compliment from the *American Bee-keeper*, for which we extend thanks:

> Old reliable GLEANINGS keeps on in the even tenor of its way, growing better and better every month. Dr. Miller is the "bright particular star" in its firmament of contributors at present.

EXTRA MATTER.

IN the last issue we stated that we were going to give 8 extra pages; but we found we were obliged, at the last minute, to make it 12. But we do not suppose that any will complain. We give 16 pages extra this issue.

INDICATIONS

POINT to a remarkably big year for honey. Supply-dealers are springing up all over the country. A year ago the indications were that we should have a splendid season, but yet it was one of the poorest on record. We wonder whether it will be so again.

PROTECTION FOR SINGLE-WALLED HIVES.

THE above is the special topic for the *Review* for March 10. While there is not entire agreement, yet the general testimony seems to be in favor of a single-walled hive with some sort of removable winter-protecting case, instead of a hive having both walls permanently fixed.

TINKER'S PERFORATED ZINC.

DR. G. L. TINKER has just had built for him a new zinc-machine that turns out the zinc much more rapidly than his old one, and yet fully equal to the old samples that he has been sending out. He has just sent us some of his new zinc. It is simply perfect. That man Tinker is hard to beat on nice work.

WHY THE DOVETAILED HIVE IS SUPERIOR TO ANY OTHER FOR LASTING PURPOSES.

SAID our painter, who had just finished up a lot of Dovetailed hives, "Those joints will never gap to the weather, like halving and mitering, and hence they will outlast any other joint ever brought out. Keep the weather out of a joint, and it will never rot." There is a good deal of pith and point in this.

LADIES' DEPARTMENT.

MISS EMMA WILSON'S two articles have called forth so many more from the ladies, that we are going to renew the department in the next issue, as above. There seems to be a strong bond of sympathy among the sisters. May it continue! We shall be very glad to have the subject of bee-keeping for ladies brought up and discussed a little more.

DR. MASON AND HIS CANE.

WE learn from Mr. Detwiler that the "diamond in the rough," spoken of on page 171, last issue, is fast progressing to a nicely finished cane. He says that the stick is dressed and polished. The design will be in imitation of comb foundation, electrotyped in copper, and gold-plated. We hope Dr. Mason will bring the cane to every convention he attends.

FIXED FRAMES IN THE SOUTH.

IT would appear, from the article on page 224, that there are some localities where the closed-end or partly closed-end frame will not answer, on account of the large amount of propolis. We should like to know about how many of our friends in the South use them now, or have discarded them because of the propolis. We want the exact truth, let it come where it will.

THE BENTON CAGE SUCCESSFUL AGAIN.

We are just informed of the successful mailing of a select tested queen in a Benton cage, consigned to W. W. Somerford, San Miguel de Jaruco, Cuba. This makes the second time that the Benton cage has been successful in mailing queens to the West Indies.

DOVETAILED JOINT IN HIVES, 30 YEARS OLD.

While looking through the "Manual of Bee-keeping," by John Hunter, we ran across a hive with dovetailed corners. This, the author says, on page 88, was first described by Mr. Woodbury in the *Journal of Horticulture* in 1861. There has been some little discussion as to who first introduced the dovetailed joint on hives, that has since become so popular. This ought to put an end to the discussion.

THAT SHINY PAPER OF GLEANINGS.

Two or three have complained that our journal paper is too glossy to be read with ease. This same trouble applies to the *Century*, *Cosmopolitan*, *Scribner's*, *Harper's*, and other first-class standard magazines. To be able to print our half-tone work, and to bring the engravings out with the best effect, we have to use this fine paper. It will give no reflection to the eyes if you hold it at the right angle to the lamp. In the day time it will give no trouble.

HOW TO HANDLE FIXED FRAMES.

We expect to publish shortly some articles from Mr. Elwood and Mr. Hoffman, on how to manipulate fixed frames. These articles will be fully illustrated, and will explain many points which may not be clear. The great mass of bee-keepers do not yet understand *how* it is that fixed frames can be handled as rapidly as the loose frame. We have some beautiful photographs which illustrate each step of the *modus operandi*.

BOOMING THE BEE-BUSINESS.

Bee-journals have been accused many times of publishing only the *bright* side of bee-keeping, such as, for instance, reporting big yields, and letting the smaller yields go unpublished. The trouble is not so much with the bee-*journals* as it is with the bee-*keepers* themselves, who will not send in reports of poor yields. If they have a big yield they like to hand it in, because it looks well. A poor report may mean a poor bee-keeper, in the eyes of the public, they think.

THE CHIPS AND SHAVINGS DEPARTMENT OF THE APICULTURIST.

This is edited by E. L. Pratt, and the chips are crisp and full of hints and hits. Here is a couple of them:

> Father Root is acting as "ballast" to Gleanings. He thinks Ernest too progressive.
>
> If all the journals are going into the "cream" business, where are they going to get their milk to skim? Would a skim-milk bee-paper pay?

The first one is a sort of compliment to us both. Don't you see that it makes our journal broader?

HASTY IN CONVENTION.

Hasty is a valuable man in convention. He is brimful of that same vein that appears in his printed articles. He seemed to thoroughly enjoy the last meeting at Toledo, of the Ohio State Bee-keepers' Association. Toward the close of the session, Dr. Mason said, banteringly: "There, now, Hasty, don't you think that conventions are a good thing?" Hasty seemed to hesitate for a moment, and finally said, with a sly twinkle in his eye, "I have heretofore been opposed to conventions, but now I am half converted." There was a time when the senior editor of this journal was not a "convention man," but now he is altogether converted, and he goes every chance he gets.

SANDPAPERING DOVETAILED HIVES.

As the new Dovetailed hive is now sold by nearly all dealers, and by the carload, all over the country, a hint on putting together may come in place. After driving the dovetails home, nailing and squaring the hive, you can very greatly improve the appearance of the corners by the use of sandpaper where the ends of the tenons, as it were, come even with the surface. When thus treated, and coated with paint, the dovetails disappear, and the hive looks as if it were made of a solid block of wood.

SURPLUS COMMUNICATIONS.

Perhaps some of our correspondents are wondering why their articles do not appear. The fact is, we have a great stack of good articles; and although we use only about half of those sent in, there are others that we fear will have to be left out, though just as good, and in some cases better, than some we print. After they have lain a couple of months, many of them are out of date or behind the times; and to publish them later when we have space would be too much on the Rip Van Winkle style. We have enlarged our space to 16 pages for the present, but this does not let us out yet.

CIRCULAR SAWS; HOW TO FILE THEM AND KEEP THEM IN ORDER.

The best treatise I have ever seen on this subject is a book by Mr. Henry Disston, entitled, "Handbook for Lumbermen." As the book is also an advertisement of their saws and tools, I suppose they give them away—at least they sent us a hundred, and all we had to pay was the express charges. They ought to have been sent us by freight; but as they charged us nothing for the books, of course we could not well complain. Now, we will send them to any of our friends who will send us enough to pay postage and express charges mentioned, which would be about 8 cts. In my opinion this book is the best authority on this whole matter of saw-filing of any thing the world contains.

WASHINGTON ALMOST A MILLIONAIRE.

Our friends of the *Rural New-Yorker* are responsible for the following:

> After having been twice President, George Washington died, in 1799, worth $900,000, the richest man in the United States. Could the richest man in the United States be elected President to-day? Is the change in public opinion with regard to the holders of great wealth due to a change in the character of the millions or of the millionaires?

Had not the father of our country been so situated that he could advance money to the feeble and struggling colonies at just the time he did, can anybody tell what would have been our condition to-day? History says that Washington accepted no pay for his Revolutionary services of eight years, but simply allowed Congress to refund the money he had advanced to pay a starving and almost rebellious army. Of this rich man, Byron says he was

"The first, the last, the best,
The Cincinnatus of the West."

JOHN H. LARRABEE AND THE APICULTURAL EXPERIMENT STATION.

Some months ago Prof. Cook wrote to E. R. R., asking whom he thought would be a good man to take charge of the apicultural experiment station at Lansing. After thinking the matter over for some time, we finally recommended Mr. Larrabee as above. We stated that, if he could be obtained, he would be just the man. We heard nothing more about it until a few weeks later, when Mr. Larrabee himself stepped into the office of the Home of the Honey-bees. We asked him whence he came and whither he was going; and on being informed that he was going to Lansing we knew the sequel, and were pleased to know that our recommendation was accepted. Mr. Larrabee has been a successful bee-keeper in Vermont. He is educated, young, and enthusiastic. He combines all the qualities of an experimenter. So far Prof. Cook is greatly pleased with him.

DEATH OF MRS. P. L. VIALLON.

OUR space is so crowded that we are unable to give obituary notices generally; but we have just learned that P. L. Viallon, one of the representative bee-keepers of the South, a supply-dealer, an old subscriber and correspondent of GLEANINGS, has lost his wife. He writes:

> *Friend Root:*—On the 3d inst. I took my beloved wife to her last resting-place. She had an affection of the heart for several years, although in tolerable health; but about three months since, she took the prevailing influenza, the grippe, which brought on a complication, and involved the lungs, and on the 2d of March she breathed her last, in her 49th year. Out of eleven children she leaves three sons and three daughters, and your unfortunate friend, to mourn her loss. Only on the 7th of August last, we celebrated the 25th anniversary of our wedding, not suspecting the end so near for one of us
>
> Bayou Goula, La., March 5. P. L. VIALLON.

We extend to you our sincere sympathy. One of our old employes, Mr. J. C. Olin, who was also for a time in the employ of Mr. Viallon, says Mrs. V. was an earnest Christian and an estimable woman. It is pleasant, friend V., when such dear ones are taken away from earth, to feel that they have gone to a *better* land.

OUT-APIARIES: ADVANTAGES OF DIVIDING UP THE COLONIES INTO OUT-YARDS, INSTEAD OF CONCENTRATING THEM INTO TWO OR MORE LOCALITIES; A HINT FOR NEXT SEASON.

REPORTS at conventions, and testimonies through the bee-journals, have shown, over and over again, that, while one bee-yard will not give a pound of surplus, another, not more than three miles away, may yield a big crop. This is something that we can sometimes explain. In one section, the farmers have a big rage for peavine clover. Perhaps a few miles away some non-yielding-nectar crop has a similar rage. The result is, that the first locality will give a crop of honey while the second will not. It sometimes happens, too, that one yard is located near a swamp; and this source will usually give some honey, even during a dry season, while the other will give none at all. And, again, an apiary may be located on upland, among basswoods, and the latter will give a good deal more honey than the swamp yard. This shows the advantage in having out-yards. In some sections it may be advantageous to divide a yard having only 75 colonies. Mr. J. B. Hains, of Bedford, O., has something like 13 apiaries, and the number in each yard varies all the way from a dozen to fifty. His locality is such that no one yard can have profitably more than fifty colonies; and it pays him, therefore, to scatter his bees into small yards around the adjoining country. It is a significant fact, that occasional yards will not support much over a dozen colonies with profit. While there are those that will support 100, they are rather rare east of the Mississippi. The thing for us is to determine just how many a locality is good for; and then, when the colonies increase beyond the average right number, put them in another location.

SILVER-PLATING OUTFITS, ETC.; LOOK OUT FOR THEM.

So many inquiries are coming in regard to outfits for silver-plating for a few dollars, that are advertised (I am sorry to say) in a good many good papers, I feel called upon to make a protest. Good, durable silver-plating can no more be done outside of a plating-factory than one can manufacture knives, forks, and spoons at a profit outside of a factory. The very plan of advertising should at once suggest to every thinking mind that it is a swindle, reading exactly as if the *editor* took pains to tell of or to encourage something commendable; whereas the whole thing is a *paid advertisement*. No girl, no widow-woman, nor anybody else, ever did any thing of the sort; and the periodical that lends its influence and good name toward fostering and encouraging any thing of the sort will surely repent it. The man who sells his good name and influence in community for a few cents or a few dollars, will, in a very short time, find he has neither good name nor influence.

Here is a couple of them, taken from a county paper. The heading, you notice, is pretty sure to attract everybody's attention by its peculiarity:

> A GIRL WORTH HAVING.
>
> After reading Mr. Gray's experience in the plating business, I sent $3 to the *Lake Electric Co., Englewood, Ill.*, and cleared $21 in a week. Isn't this pretty good for a girl? There is tableware and jewelry to plate at every house; then why should any person be poor or out of employment with such an opportunity at hand? A SUBSCRIBER.

You will notice that the above is signed, "A Subscriber," giving people to understand that a subscriber to the above paper sends in this report, which is an absolute falsehood from beginning to end; and the editor who accepts such an advertisement and puts it in his reading-columns is a party to a fraud. In another place in the same paper is another, which reads as follows:

> MONEY FOR EVERYBODY.
>
> Mrs. Wells asks, "Is it a fact that a person can make $30 to $40 a week in the business?" Yes, I make from $5 to $7 a day, plating and selling plated ware. The Lake Electric Co., Englewood, Ill., will give you full instructions. In this business there is money for everybody. A READER.

Just for the fun o it we turned to Dun and Bradstreet, but there is no such concern at Englewood, Ill., at all. Very likely there is somebody there to take the money out of the post-office, and possibly they send some sort of apparatus. Perhaps some of our readers can tell us more about it.

THE WORLD'S COLUMBIAN FAIR.

THE following is an editorial which we clip from the *American Bee Journal*. As it contains just the information that many State bee-keepers' associations want, we are glad to give it entire:

> The Illinois State Bee-Keepers' Association decided to ask the Legislature to appropriate $5000 for the collection and maintainance of a suitable exhibit of bees, honey, wax, and apiarian appliances at the World's Columbian Fair. The committee to form the bill and present its claims are:
>
> Thomas G. Newman, Chicago.
> Col. Charles F. Mills, Springfield.
> Hon. J. M. Hambaugh, Spring.
> Hon. John S. Lyman, Farmingdale.
> C. P. Dadant, Hamilton.

A. N. Draper, Upper Alton.
S. N. Black, Clayton.

All other States should take similar action at once, so as to secure the appropriations in good time to command magnificent exhibits.

For the benefit of committees in different States, who will have to present the matter to the Legislatures and ask for appropriations, we will here reply to a question which has been propounded to us and to others a score of times. That question is—

WHAT IS THE MONEY NEEDED FOR?

The answer is easy. It is needed to procure, transport, organize, and take good care of exhibits, and may be particularized thus:

1. To pay a competent person for time and diligent work for a year or more, to procure, arrange, and superintend an exhibit which shall be a credit to the State.

2. He will need many assistants during the entire time of holding the Columbian Fair, to care for, and protect from damage or waste, the many articles exhibited, as well as to keep them clean and in proper condition for thorough examination by the millions of visitors. These must be efficient persons, and will have to be suitably paid.

3. Products of the apiary, machinery, and appliances, will have to be transported to the fair-grounds, and this will entail considerable expense.

4. We do not desire a separate building for the industry of bee-keeping, but it will it will be necessary to *fit up a large space* in one of the principal buildings devoted to agriculture, horticulture, or floriculture. To make it convenient, and have it attractively decorated, will cost money; but it will be well spent, nevertheless; for the general verdict at all fairs is, that the "Bee and Honey Department" is the most attractive thing on the grounds.

5. At the close of the World's Fair all the goods exhibited must be carefully packed and returned to the owners. This item of expense for labor, material, drayage, and railway transportation, will be very large, on account of the care required in handling and packing, so as not to destroy the values. Honey in the comb (in all forms and shapes imaginable) is delicate and fragile; and the utmost care will be required to prevent its being damaged or ruined entirely.

6. And last, but not least, cash prizes, medals, and diplomas, will of necessity be required to bring out an exhibit which will honor the State. This item must necessarily be a large one, for upon it will depend the success of the entire undertaking.

These are a few of the things that will require money, and for which a liberal appropriation is desired from the public treasury.

"THE REASON WHY."

On page 214 the writer of the above article makes this remark: "Because they are supply-dealers, and because it was to their interest to do so." Now, it has lately been getting to be quite fashionable to insist that large enterprises, either in publishing a journal or dealing in supplies, are built up by furthering selfish interests. No sadder blunder was ever made. The publisher or supply-dealer who does every thing for self-interest, never builds up a business. Honesty *is* the best policy; and candid, honest truth, is a thousand times more *profitable* than any sort of selfish, underhanded trickery. We urge beginners to start out with the standard frame, just exactly as we would urge a man who wanted to go somewhere, to drive in the road, when he was meditating letting down fences and going crosslots with his horse and buggy. We who have built up a business, or who have control of a successful bee-journal, are laboring for the good of our patrons, especially for the younger ones who are just starting. It is our business to save them from sad mistakes and blunders; and the insinuations that are constantly being thrown out, that success in business comes only to those who are sharp, tricky, dishonest, and selfish, and who are only after the almighty dollar, emanate from the evil one himself; and it will not only be the ruin of our people financially, if persisted in, but it will be the ruin of us as a people, *body and soul.* Hold fast to the little text, "thinketh no evil;" and for mercy's sake have charity enough to believe that your neighbor is at least *almost* as good a man as *yourself.*

FLORIDA AND ORANGE BLOSSOMS.

A FEW moments ago a beautiful bouquet of orange-blossoms, redolent of perfume, cam through the mails, with the following letter:

Mr. Root:—Please send me an extra copy of GLEANINGS for March 1. I think I like GLEANINGS better every copy I read. I read it through from one end to the other, and then look over the best things again. I took the first honey of the season on the 5th. It was from orange, peach, and plum blossoms. I send you some orange-blossoms by this mail.
SIDNEY SMITH.

Lake Como, Fla., March 10.

The flowers are so handsome, and the perfume so exquisite, that some of our office girls are thinking of going to Florida when they are ready to get married—that is, if the groom can scrape up the stamps for such a "wedding flight." I do not mean that they *said* so, but I judged by their smiles and pleasant looks that they were *thinking* of something of the kind as they passed the bouquet from one to another.

THE PRESENT PRICE OF ALSIKE.

Perhaps no one thing occasions more jangling and hard feelings than the changes in the prices of alsike clover—especially the rise that almost always comes about sowing time. Illustrative of this we give below a copy of a letter just at hand, from one of the large grass and clover-seed dealers in Cleveland:

A. I. Root, Medina, O.: Dear Sir:—Your favor of the 10th inst. is received. We inclose small samples of alsike, which we mark and quote f. o. b., subject to prompt acceptance and unsold, as follows:

"Frens," 4 bags, per bushel, $9.50.
"Lawson," No. 1, 3 bags, per bushel, $9.75.

Hoping to have your order, which will command prompt attention, we remain

Very truly, etc.,
H. C. BURT & SON,
Dealers in Wool and Grass Seeds.

Cleveland, March 11.

Now, friends, see where you would have been had you raised a big crop of alsike and kept it till the present time. We have not paid the above price, because it is considerably more than we have been selling at retail, and we do not propose to pay it unless we are obliged to. All we can promise is this—that, if you send us your orders, we will do the very best we can. If we are absolutely *obliged* to pay the above figures, of course we can not retail it for less than from $11 to $12 a bushel.

THE NEW WATER CURE, ETC.

ONE thousand copies of the above little pamphlet were given away in about a week. We are now printing a larger edition of 5000. Many of our friends who sent for ten or a dozen disposed of them so quickly that they have ordered another lot. All right. We believe we can print and mail as many as can be given away where they will do good. Several cases have already been reported where they have have gone into towns where agents were canvassing, at $4 for each secret; but ours soon wound up the $4 business. It seems to me that every good man and woman should be doing as much as possible to discourage or stop this system of defrauding people of their hard earnings, by false representation and false pretense.

KNOWN AND PUBLISHED IN GERMANY, OVER 40 YEARS AGO.

Our proof-reader has translated the following from a clipping taken from a German paper, the name of which we do not know:

Dr. Hall's medical pamphlet has made use of not a few of our western exchanges since the beginning of the year. Dr. Hall makes a good use of secrecy in the application of his highly recommended remedy; but when he is pushed as to its discovery it becomes evident that he is not well posted in medical lore; for there appeared a little book in Reutlingen, more than forty years ago, in which we saw all that Dr. Hall puts forth with so much secrecy. The *Germania*, of Milwaukee, took up at first a column of his recommendations; but finding afterward that there was nothing original about it, it gave the whole thing away to its readers. It contains only about 20 pages, written with great verbiage, and is sold to people for $4.00 by Dr. Hall and his agents.

Now, friends, there is a moral in all this. It transpires, as you see, that the whole of Dr. Hall's discovery was not only in print at the very time in our own country, but in other countries also; and with the multitude of books and periodicals now extant, as well as the multitude of thinking people and earnest students, not only in medicine but in all other departments of science and art, shall we not be a little slow in deciding that any one man has the right to monopolize and make capital out of any thing that comes up, that seems, for the time, to be new?

SPECIAL NOTICES.

ALSIKE CLOVER SEED WANTED.

If any of our readers have any choice alsike seed for sale they will do us a favor by mailing us a small sample, telling what they have and what they will take for it. The wholesale price still continues quite firm, and our stock is almost exhausted.

TOBACCO DUST FOR KILLING BUGS AND INSECTS.

As some of the friends may wish to try some of the tobacco dust spoken of on another page, we will say that we can furnish it as follows: 1 lb., by mail, 25 cts.; 5 lbs., by express or freight, 3 cts. per lb.; 10 lbs., 2½ cts. per lb.; 25 lbs., 2 cts. per lb.; 100 lbs., $1.75.

ADVANCE IN ALSIKE CLOVER SEED.

We are compelled to advance the retail price of alsike to the following, and may without notice have to advance still more, but will always give as good a price as it is possible to do. Bushel, $10.00; ½ bushel, $5.20; peck, $2.75; lb., 22 cts. No change is made from the prices quoted in last issue, on white and alfalfa clovers.

RUBBER TUBING, ETC.

So many of the friends have complained that they do not find the soft-rubber tubing I described in our last issue at their drugstores, I have taken pains to purchase a quantity that we can send by mail at the rate of five cts. per foot. We can also furnish the hard-rubber terminal tube at 10 cts. each. The above prices will include postage.

SMOKER FUEL AT 75 CTS. A BARREL.

This is a kind of sawdust and excelsior mixed, that comes from making bee-feeders and other work of this class, that is the best smoker fuel of any thing *we* have ever used, and we have tried almost every thing. We will dispose of what we have on hand, for 75 cts. a barrel, barrel included. It can go by freight. When you are ordering other goods you can easily have a barrel of this included.

OUR SEED AND PLANT CATALOGUE FOR 1891.

This is just out, and on many things we have been enabled to make the prices even lower than they were in our January number. Very few things have advanced much, with the exception of alsike clover. In our locality there is at present no opportunity to get plants outdoors, on account of the continued wetness. In fact, we have had more winter since the first of March than during all the winter months.

FOR SALE.

Thoroughbred Cheshire Pigs, Plymouth Rock and Light Brahma Eggs, Light Brahma Cockerels, and Unfermented Niagara Grape-juice. Write for prices. **C. J. BALDRIDGE,**
6d **Kendaia, Seneca Co., N. Y.**

Please mention this paper.

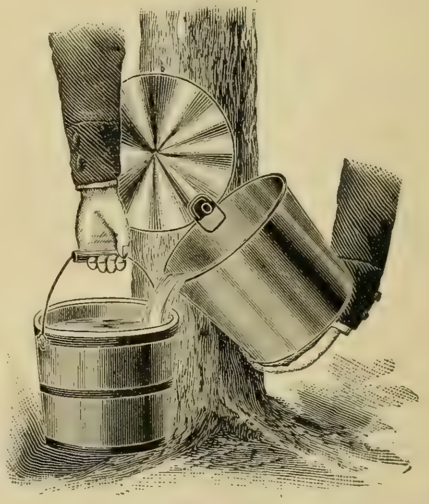
A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅜x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

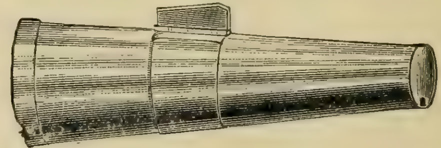
A. I. ROOT, Medina, O.

Maple Sugar Supplies

Maple-sugar-making time is at hand, and some are inquiring the price of supplies. First, you should supply yourself with that excellent book by Prof. Cook, "Maple Sugar and the Sugar-Bush;" price 35 cents; by mail, 38c. By studying this you may save many times the price of it. Notwithstanding the advance in the cost of tin, we are able to offer you sap-buckets and spiles and cans at last year's prices, as below:



Above cut shows a bucket hung on wire loop, with hinged tin cover, and manner of emptying.



IMPROVED RECORD SAP-SPOUT.

Record sap-spouts, $1.00 per 100; $8.00 per 1000.
10-qt. buckets, IC tin, $15.00 per 100; IX tin, $17.00.
12-qt. buckets, IC tin, $16.00 per 100; IX tin, $18.00.

Patent hinged covers, $6.00 per 100. Reversible wood covers, $4.50 per 100. Wire loops for wood pails, 30c per 100; for tin pails, 25c per 100. 1-gal. square cans, 50 or 100 in a crate, $12.00 per 100. Boxed 10 in a box, for re-shipment when filled, $1.50 per box; $14.00 for 10 boxes.

A. I. ROOT, MEDINA, OHIO.

Wants or Exchange Department.

WANTED.—To exchange bees for a tubular boiler from 4 to 8 horse power. Correspondence solicited. D. S. BASSETT,
4-tfdb Farnumsville, Worcester Co., Mass.

WANTED.—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free.
2-7db C. W. DAYTON, Clinton, Wis.

WANTED.—To exchange Pekin ducks for maple sugar. Will exchange eggs for sugar. 7d
CHAS. MCCLAVE, New London, O.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made. 19tfdb
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange pure Brown Leghorn eggs for tested Italian queens. GEER BROS.,
5-tfdb St. Marys, Mo.

WANTED.—To correspond with parties who wish to improve their poultry. Fair dealing.
5-tfdb D. F. LASHIER, Hooper, Broome Co., N.Y.

WANTED.—To exchange fruit trees and plants now, bees and queens in May and June, honey from crop of 1891, for bee-hives and fixtures.
Address JOHN W. MARTIN,
6tfdb Greenwood Depot, Alb. Co, Va.

WANTED.—To exchange bees in 10-frame Langstroth hives at $5.00 per colony, for foundation at market price. A. C. BUGBEE,
6-7d Lochiel, Benton Co., Ind.

WANTED.—To exchange bees for young horse.
6-7d A. C. WALDRON, Buffalo, Minn.

WANTED.—To exchange a saw, with countershaft, belt, etc., and an Excelsior force-pump.
6-7d L. L. ESENHOWER, Reading, Pa.

WANTED.—Pure Italian queens, sections, nursery stock, or offers, for pure P. Rock eggs or Quinby hive-corner clasps. L. C. AXTELL, Roseville, Ill.
6tfdb

WANTED.—To exchange some excellent offers for bees by the pound, and foundation.
6-7d L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange prize-winning Brown Leghorn eggs—$1 per 15—for flowers, seed, or offers. 7-8d MRS. ELLA LAWS, Lavaca, Ark.

WANTED.—To exchange pure Italian bees, queens, or hives, for a gentle horse—one that ladies can drive. Send for price list. MRS. OLIVER COLE,
7tfdb Sherburne, Chenango Co., N. Y.

WANTED.—To exchange Cuthbert raspberry plants, for honey, comb foundation, onion-sets, Globe artichoke plants, or any thing I can use. Write for particulars.
7d WM. H. WEISER, York, York Co., Pa.

WANTED.—To exchange black bees and raspberry sets, etc., for queens, bees, wax, or offers.
7d R. J. NASH, Williamson, Wayne Co., N. Y.

WANTED.—For sale, or exchange for smaller farm, 100 acres of choice fruit, hay, and grain land, all under good cultivation, well seeded and well fenced, 3½ miles north of Cass City, on State Road, in a thickly settled neighborhood of mostly Canadians and Germans; ½ mile from new M. E. church; one mile from school. Five acres of young, bearing, grafted, apple, pear, plum, and cherry trees; 30 Concord grapevines, plenty of currants, gooseberries, etc. A dwelling-house 18x26, with an addition 16x24; 1 barn, 32x70; also 1 barn, 24x32; sheep-shed, 12x32; 1 work-shop, 13x16; four good wells; 40 colonies bees in Simp. hives; team, stock, and farming tools. Price of land, $4000. Reason for wanting to sell, wife's health is poor. For further particulars address WM. MARTIN, 7-10db
Cass City, Tuscola Co., Mich.

WANTED.—To exchange comb foundation for beeswax.
J. S. BROOKS, Silverton, Marion Co., Ore.

WANTED.—To buy bees, or exchange for bees, apiarian supplies, secretary, hat-rack, bedroom set, or any piece of cabinet work desired. Will send designs for inspection. All work guaranteed. first-class.
7d CHESTER OLMSTEAD, East Bloomfield, N. Y.

WANTED.—To exchange P. Rock and L. Wyandotte eggs, valued at 15 for 75 cts.; L. & H. foundation, beeswax, maple syrup, valued at $1.00 per gallon, for bees.
7d F. W. DEAN, New Milford, Pa.

WANTED.—Your wax to work up at lowest living prices. Write at once to 7tfdb
J. V. CALDWELL, Cambridge, Henry Co., Ill.

WANTED.—Man who understands the care of bees in movable frames. A few swarms on private place. $20 and board per month. References required. JAS. HORROCKES,
7-8 Hyde Park, Dutchess Co., N. Y.

PURE ∴ ITALIAN ∴ QUEENS.

TESTED, $1.50. **IMPORTED**
UNTESTED, $1.00. **MOTHER.**

MISSES S. & M. BARNES, PIKETON, OHIO.
Please mention GLEANINGS. 6-7-8-9-10-12d

Cole's Garden-Plow.

I will sell one or more garden-plows at 30 per cent off from the retail price, to any one ordering before an agency is established in his place.

Send for circular and price.
G. W. COLE, Canton, Ill.
Please mention this paper.

FOR SALE.

My Carniolan and queen-raising apiaries, with the agency of the Chicago Bee-Keepers' Supply Co. at Topeka, with a large trade established. Reason of change to take charge of our Chicago depot.
J. B. KLINE, Topeka, Kan.
In writing advertisers please mention this paper.

BRONZE TURKEY EGGS, $3.00 per 13. Pekin Duck eggs, $1.00 per 13. Pure stock.
7-d J. C. PROVINS, Masontown, Pa.

FOR SALE.—Eggs of Golden Wyandottes, $2.00 per 13. Silvers, $1.00 per 13. Japanese buckwheat, 90c per bushel. Sacks free. 7-10-db
P. F. RHODES, New Castle, Ind.

I Have SEED POTATOES for SALE,

which I will put on board cars for $2 per bushel. I have the Everett and Early Ohio in limited quantities. A. J. KIEFFER, Nevada, Wyandot Co., O.
Please mention this paper. 7d

FOR SALE.—I have about 30 choice tested Italian queens at $1.25 each, 3 for $3, $11 per dozen. guarantee satisfaction and safe arrival. 7d
D. D. HAMMOND, Malone, Ia.
tfdb Please mention this paper.

CARNIOLANS

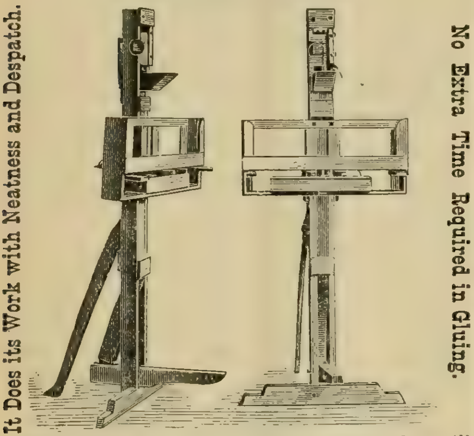
Are the gentlest, most industrious, and hardiest bees known. Our Carniolans show no yellow bands. *Pure Carniolans do not.* We have a fine stock of tested queens for early orders. Descriptive price list free; send for it. F. A. LOCKHART & CO.,
7-9d Lake George, Warren Co., N. Y.
Please mention GLEANINGS.

For Sale—Hybrid Bees.

25 GOOD COLONIES in shipping-cases, with 9 S. frames, $3.00 each. Also 25 Chaff hives at $1.00 each. Delivered at R. R. station any time after May 1. Reference, A. I. Root. 7tfdb
MABEL A. FENN, Tallmadge, Ohio.
Please mention this paper.

PHILO'S AUTOMATIC
SECTION-BOX GLUING-MACHINE,

For Putting Together and Automatically Gluing the One and Four-Piece Section-Boxes.


It Does its Work with Neatness and Despatch.
No Extra Time Required in Gluing.

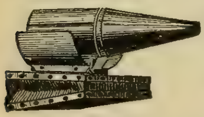
This is the only machine on the market that will put the glue right where it belongs without wasting the glue or mussing the section.

Price of the combined machine, - - - $6.00
For four-piece only. - - - - - - - 5.00

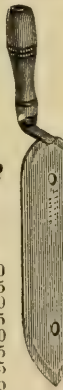
E. W. PHILO, Half-Moon, N. Y.

In responding to this advertisement mention Gleanings.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	. 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1.00
Little Wonder,	1¾ "	"	.. 65
Uncapping Knife.....		....	.. 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

Sirs:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. Snell.

Vermillion, S. Dak., Feb. 17, 1890.

Sirs:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. Morgan.

Sarahsville, Ohio, March 12, 1890.

Sirs:—The smoker I have has done good service since 1883. Yours truly, Daniel Brothers.

Send for descriptive circular and testimonials to

1tfdb **Bingham & Hetherington, Abronia, Mich.**

In responding to this advertisement mention Gleanings.

FOR SALE (for 1891) cheap, for cash. Italian Bees and Queens. Address

Otto Kleinow, Apiarist,
6-7d 150 Military Ave., Detroit, Mich.

5-BANDED GOLDEN ITALIANS.

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones ⅓ to ⅘ yellow. Won **1st Premium at Ill. State Fair** in 1890. Nearly 300 booked for 1891. Warranted Queens, May, $1.25, 6 for $6.00; after June 1st $1.00, 6 for $5.00. Special discount for large orders as to dealers. Have your order booked now in order to get them when wanted. Satisfaction guaranteed. No foul brood. Select Barred Plymouth Rock Eggs, $1 per 13. Good reference given.

1tfdb **S. F. & I. TREGO, Swedona, Ill,**

In responding to this advertisement mention Gleanings.

TAKE NOTICE.
Our New Factory is Now Open

To receive orders for **Bee-Hives, Frames** of all kinds, **Shipping-Crates, Sections, Honey-Cans, Comb Foundation,** and **Smokers.** Write for price list to

GREGORY BROS. & SON,
5-tfdb **Ottumwa, Wapello Co., Iowa.**

In responding to this advertisement mention Gleanings.

ATTENTION, CALIFORNIANS!

I have for sale 16000 1-lb. V-groove one-piece white basswood sections, 1⅞ wide, made by A. I. Root. Price $5.00 per M, put on cars at King City, Monterey Co., Cal. For 5000 or more, write for special prices to

C. K. ERCANBRACK, Jun.,
4tfdb Lonoak, Monterey Co., Cal.

In responding to this advertisement mention Gleanings.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

In responding to this advertisement mention Gleanings.

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

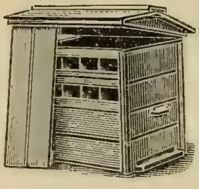
In responding to this advertisement mention Gleanings.

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

In responding to this advertisement mention Gleanings.



DOWN THEY GO!

For the next few days $1.25 will buy our 8-frame chaff hive, with 2 T supers and 8 heavy top-bar brood-frames.

Send for PRICE LIST.

ROE & KIRKPATRICK,
Union City, Ind.

1tfdb Please mention this paper

100,000 STRAWBERRY-PLANTS.

Best new and old varieties. Prices low. Also Grapevines, Raspberry, and Blackberry plants, etc. Send for price list. **D. G. EDMISTON,**
6-7-8d Adrian, Lenawee Co., Mich.

In responding to this advertisement mention Gleanings.

READY TO MAIL, TESTED ITALIAN QUEENS.

Reared last Aug., $1.75; after March, $1.50. Untested, from Doolittle's Select Mother, raised by his method, $1.00. Reduction on 3 or more. Orders booked now; pay when queens are wanted. 6-7-8d

JOHN B. CASE, Port Orange, Vol. Co., Fla.

In responding to this advertisement mention Gleanings.

The Greatest Invention of the Age!

BEES MADE TO HIVE THEMSELVES.

Full particulars free. Address
5-tfd **H. ALLEY, Wenham, Mass.**
Please mention this paper.

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.
M. S. ROOP, 520 East Broadway,
6-17db **Council Bluffs, Ia.**
☞In responding to this advertisement mention GLEANINGS.

Bees & Supplies for Iowa.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster,**
5-tfdb Mt. Vernon, Linn Co., Iowa.
-3-4d Please mention this paper.

BEE-KEEPERS

Send for my illustrated Catalogue of Bee-Keepers' Supplies. Prices reasonable.
F. W. LAMM,
Box 106, Somerville, Butler Co., O.
3-8db Please mention this paper.

SEND ME YOUR

BEESWAX

To be made into Foundation. Made on Root or Vandervort mills. Samples of work free.
5-6 **C. A. HUFF, Clayton, Mich.**

SECTIONS

$3.00 per 1000; all kinds of bee-supplies cheap. Send for free illustrated catalogue.
J. J. BRADNER,
5-7-9d **600 Lima Ave., Findlay, O.**

HONEY EXTRACTOR.

A NEW DISCOVERY. Differing from all others ever yet made for the purpose.

It works strong, thorough, neat, handy and rapid, and is the cheapest Extractor known. Send 2-ct. stamp for a circular of 18 pages to REV. A. R. SEAMAN, Connellsville, Fayette Co., Pa. 5-15d

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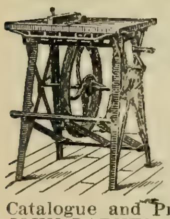
Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

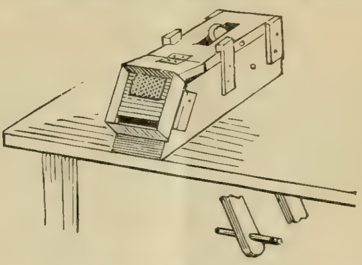
Bee-Keepers' Supplies.

WHY ⁘ SEND ⁘ LONG ⁘ DISTANCES?

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.
ESTABLISHED IN 1884. 7tfd
Please mention this paper.

The Burdsall Foundation Fastener



THE BEST MACHINE MADE.

Satisfaction guaranteed. Send for catalogue and price.
The Burdsall Apiary and Supply Factory,
4-11db **Box 744, Lebanon, Ohio.**
☞In responding to this advertisement mention GLEANINGS.

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**
Bleachers, Refiners, and Importers of Beeswax,
5-16db **Syracuse, N. Y.**
☞In responding to this advertisement mention GLEANINGS.

$5.00 IN MAY, AND $4.50 IN JUNE,
—WILL BUY—

A Strong Full Colony of Pure Italian Bees

in Root's new Dovetailed or the old Simplicity hive, as you prefer. Each to contain a fine tested queen and plenty of bees and brood. Everything first-class. Pure Japanese Buckwheat, per bu., $1; ½ bu., 60c; ¼ bu., 35c, bag included. Scotch Collie Pups, $4 each.
N. A. KNAPP, Rochester, Lorain Co., O.
6tfdb Please mention this paper.

HIVES AND FRAMES.

8-frame hive, with two supers, 90c; 10, $8.00. Thick-top brood-frames, with top-bar split to receive fdn. guide, per 100, 90c; other styles, $1.00 per 100. No. 1 sections, $3.00 per M. Parker fdn-fasteners, 20c, this month only. Circular free. 19-17d

SPECIAL RATES TO DEALERS.
Write us. **W. D. SOPER & CO.,**
118-120 Washington St. E., **Jackson, Mich.**
☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE.

COLONIES,
NUCLEI,
and QUEENS
at living rates. Send for circular and price list to
C. C. VAUGHN,
Columbia, Tenn. 6tfdb

Printing, Note Heads, Bill Heads, Envelopes, Business Cards 250 for $1.00 Post Paid. Good honest work and paper. 50 Ladies Cards in Steel Plate Script 25 c. No Samples. 12 Years in Business. Send Copy and dollar to
BURTON L. SAGE, New Haven, - Conn.

ADVANCED BEE-CULTURE;

Its Methods and Management.

I am now engaged in writing and printing a book that is to bear the above title. It is to take the place of my other book, *The Production of Comb Honey*, which will not be re-published. Although the new book will contain at least five or six times as much matter as *The Production of Comb Honey*, yet the price will be only 50 cts. The book is already partly printed, and will probably be out some time in April or May. If any of the friends would like to "help me along" in meeting the expenses of getting out the book, they can do so by sending their orders in advance. Such orders will be most thankfully received, and filled the *very day* the book is out. I will send the REVIEW one year and the book for $1.25. The REVIEW will be sent on receipt of order (I have plenty of back numbers to send it from the beginning of the year), and the book as soon as it is out. Stamps taken, either U. S. or Canadian. Samples of REVIEW sent free. 10tfdb

W. Z. HUTCHINSON, Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

Leahy M'f'g Co.,

—UNDOUBTEDLY THE—

LARGEST PLANT IN THE WEST,

Built exclusively for the manufacture of Apiarian Supplies. **One and One-Half Acres Floor Space.** We sell as **Cheap as the Cheapest**, and our goods are as **Good as the Best.** Parties will do well to **write us** for estimates on large orders. We will send you our catalogue for **your name on a postal card.** Address **LEAHY MFG. CO.,**
7tfdb **Higginsville, Mo.**

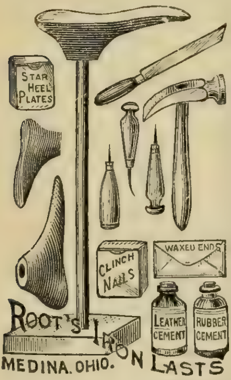
Please mention this paper.

TAKE ANOTHER LOOK

At my "ad" on page 242, Gleanings for March 15. IT WILL PAY YOU. 7d

C. J. BALDRIDGE, KENDAIA, N. Y.

Please mention this paper.



ROOT'S

Household Repairing OUTFIT.

A combination of tried, practical, common-sense tools and materials that will enable any one with ingenuity enough to nail on a fence-board to do his own half-soling, boot, shoe, rubber, and harness repairing. No pegs are used—simply wire clinch nails. Saves time, trouble, and expense. Entire outfit neatly boxed, only $2. Supply-dealers should sell them. Send for circular to

ROOT BROS.,
Medina, Ohio.

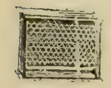
Mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT-BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

BUCKWHEAT.

MARTIN'S PROLIFIC.

This buckwheat under favorable conditions will yield 70 bushels per acre, as it is an enormous yielder—stands up well and endures drouth remarkably well. Last season it yielded double the quantity per acre sown, under the same or rather worse conditions than my Japanese, 100 rods distant, and did not blast one-half as bad. I think it will supersede the Japanese when better known. Price $1.50 per bushel, 85c per half bushel, bags included. $1.25 per bu. for 5 to 10 bushels. Remit by P. O. order, bank draft or registered letter to the originator, 7-10db

WM. MARTIN, CASS CITY, TUSCOLA CO., MICH.

Please mention this paper.

GOLDEN ITALIANS.

AND THE BEE-KEEPERS' REVIEW.

I have purchased the queen that, together with her bees, took **first premium** last fall at the Detroit Exposition. They are the Five-banded Golden Italians. The **handsomest** and **gentlest** bees, and the **yellowest** drones I have ever seen. They are not inclined to rob, and it is claimed they work on red clover. After June 1st I shall offer the daughters of this queen for $1.00 each, or 6 for $5.00. I have a number of tested queens, reared last season by H. Alley from his "one-hundred-dollar queen," that I will sell for $2.00 each. In order to secure a few orders early, to all persons who send me, before **May 1st,** $1.75, I will send one five-banded Golden Queen, and the **BEE-KEEPERS' REVIEW** one year; for $2.75 one of the tested Alley queens and the **REVIEW** one year. The **REVIEW** is published monthly by W. Z. Hutchinson, at $1.00 a year. The **REVIEW** will be sent on **receipt of order.** Untested queens will be sent after June 1st; tested queens the last of May. All orders will be filled in rotation. Make money orders payable at **Flint, Mich.** Address

ELMER HUTCHINSON,
Rogersville, Genesee Co., Mich.

Please mention this paper.

L. C. ROOT APIARY FOR SALE.

A first-class opening for an energetic man. Nice home.

BUILT ESPECIALLY FOR BEE-KEEPING.

Nice garden, plenty of fruit, etc. Room for outapiaries. 7tfdb

J. C. HAINES, MOHAWK, N. Y.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

10 colonies of Italian bees cheap, if sold soon. 7d
MRS. N. MARKS, Newburg, Cuy. Co., O.

PEKIN DUCK EGGS

$1.25 per 13, from large fine ducks. Now is the time to buy. A few pairs at $3.50 per pair. Largest breeder in Ohio. **CHAS. McCLAVE,**
Box 40, 7d New London, O.

Please mention GLEANINGS.

Honey Column.

CITY MARKETS.

New York.—*Honey.*—Market is entirely bare, with little or no demand, except for some 2-lb. fancy white, which would readily be taken. California extracted honey in fair demand at 6¾@7; Florida, 7½@8. *Beeswax.*—Stocks and supply very small. Prices gradually growing better. We quote, for good yellow, 27@28. **F. G. Strohmeyer & Co.,**
Mar. 19. New York.

Cincinnati.—*Honey.*—There is a good demand for extracted honey at 6@8c a lb. on arrival. Demand for comb honey is fair at 15@17c a lb. for choice white, in a jobbing way. Demand is good for *beeswax* at 24@28c a lb. for good to choice yellow on arrival.
Cincinnati, Mar. 18. **Chas. F. Muth & Son.**

Albany.—*Honey.*—Have received one consignment of comb honey in pound sections since last issue, and sold the clover at 16c and the buckwheat at 13c. We are out of buckwheat in pound sections. Dark extracted honey is moving off lively at 7@8c. Light sells slow at 9@1 c.
Mar. 21. **Chas. McCulloch & Co.**

Detroit.—*Honey.*—Comb honey is selling slowly at 14@15 cents. Extracted, 7@8c. *Beeswax* firm at 28@29c.
Bell Branch, Mich., Mar. 20. **M. H. Hunt.**

Kansas City.—*Honey.*—Demand continues steady for 1-lb. comb. Stocks very light, receipts light. We quote 1-lb. comb, white, 16@18c; dark, 12@13c; 2-lb. California comb, 14@15c. Extracted, 6@7c. *Beeswax*, 22@25. **Clemens, Mason & Co.**
March 23.

San Francisco.—*Honey.* — Extracted honey, 6c; Comb, 1-lb., 12@14½c; 2-lb., 11@12c. *Beeswax.*—No supplies. **Schacht, Lemcke & Steiner,**
Mar. 18. San Francisco, Cal.

For Sale.—"Choice orange-blossom" extracted honey in 60-lb. tin cans, or kegs holding 14 to 15 gallons. Price $1.25 per gallon, f. o. b. cars here.
Arthur F. Brown,
6 9db Huntington, Putnam Co., Fla.

For Sale.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
1tfdb **E. J. Baxter**, Nauvoo, Ill.

Special Notices.

GRAPEVINES FOR SHADING HIVES.

By some misunderstanding, our ordinary grapevine advertisement was left out of our regular catalogue, and also out of the seed catalogue. We have a beautiful stock of two-year old Concord grapevines, ready to ship. Price 10 cts. each; 85 cts. for 10, or $7.00 per 100. If wanted by mail, add 3 cts. each extra.

VEGETABLE-PLANTS FOR THE FIRST OF APRIL.

Asparagus-plants. We have a nice lot of fine ones, but they are only one year old. Price 10 cts. for 10; 75 cts. per 100; 1000, $6.00.

Cabbage-plants. We have only the Select Early Jersey Wakefield. Price 5 cts. for 10; 40 cts. per 100; $3.00 per 1000.

Cold-frame plants, none to spare.

Snowball cauliflower, same as asparagus.

Lettuce-plants. We have Grand Rapids and Henderson's New York, at the same prices as cabbage-plants.

Celery-plants. White Plume, Self-blanching, ready to ship. Same prices as cabbage-plants.

If wanted by mail, add 5c for 10, or 25c per 100, on all above plants.

Strawberry-plants. We are shipping daily, as per editorial or page 187, March 1.

ITALIAN BEES FOR SALE.

I will sell pure Italian bees in good L. portico hives at $5.50, or two for $10.00. Also pink and white sweet peas at 13 cts. per oz., or 75 cts. for 2 oz. 7d
C. G. Fenn, Washington, Conn.

NEBRASKA

For Nuclei Colonies and Italian Queens. Circular and price list now ready. 7tfdb
J. M. YOUNG.
Box 874. **Plattsburg, Neb.**

1891 Early Italian queens from bees bred for business. Each $1.00; six $4.50. Order now, pay when queen arrives.
7tfdb W. H. Laws, Lavaca, Ark.

DON'T FORGET

That I am now booking orders for those beautiful ALBINO QUEENS, and the well-known Italians. Send in your order and pay when queens are ready to ship. **A. L. KILDOW, Sheffield, Ill.**
Please mention this paper 7d

LEATHER-COLORED

PRICE LIST FREE ON APPLICATION.

A. E. MANUM, - - BRISTOL, VT.

ITALIAN QUEENS.

Please mention this paper. 7-14db

FOR SALE.

One double-drum, "Ledger Wood," hoisting-engine, cylinders 7x9 in. Used one month.
7-8d W. S. Ammon, Reading, Pa.

FRIENDS, if you want three or four L. frame nuclei full of nice Italian bees, queen, and capped brood, or queens, that will give satisfaction, at reasonable prices, write to 7tfdb
W. A. Sanders, Oak Bower, Hart Co., Ga.

IMPORTED ITALIAN QUEENS.
W. C. FRAZIER, ATLANTIC, IOWA.
7-17db Please mention this paper.

NEW ORLEANS APIARIES

Italian and Carniolan bees and queens for sale.

Send in your orders now, and the money when bees or queens are wanted. Purity and safe arrival guaranteed. Address 7d
J. W. WINDER, 572 MAGAZINE ST., NEW ORLEANS.
Mention this paper.

SEND TO E. J. SHAY,

Thornton, Taylor Co., W. Va., for illustrated catalogue of bee-keepers' supplies, both in the flat and set up. 7tfdb E. J. Shay.

FOR SALE! 100 colonies of bees, Italians and hybrids, in eight-frame, Langstroth, portico, movable hives. Price for Italian, $4.50; hybrids, $4.00 each. I guarantee safe delivery. 7-8-9d
CHRISTOPHER GRIMM, Jefferson, Wis.

FOR SALE.

Italian and hybrid bees in Dovetailed and new Heddon hives. Price $6 and $4 respectively. One reliable pit game cock, $3; two pair of steels, $4; one hot-water incubator, 50-egg capacity, $6; one-horse-power engine and boiler in good order, $25.
7-8d **J. T. FLETCHER, Clarion, Pa.**
Please mention this paper.

STOP! THINK! ACT!

Griffith's Italian queens will give you strong colonies, plenty of honey, and nice bees. 7-12db
Untested queens in May, $1.00.
" " in June, July, and Aug., 75c.
Tested " in May, $1.25.
" " in June, July, Aug., & Sept., $1.00.
All queens reared from best imported and choice home mothers. Safe arrival guaranteed. Address all orders to **B. C. GRIFFITH,** Griffith, N. C. Postoffice order on Charlotte, or reg. let. to Griffith.
Please mention this paper.

PACIFIC-COAST
Fanciers' Monthly.

Have you seen it?

FOWLS, DOGS, PIGEONS, PETS, ORCHARD, HOME:

It is devoted solely to such subjects. It is beautifully illustrated, is

BRIGHT, PRACTICAL, HANDSOME, AND MONEY-MAKING.

Not an ordinary poultry paper. Send 10 cts. for a sample copy, or $1.00 for a full year; and if you don't say it is worth a good deal MORE than that we will refund your money. **TRY IT!**

Address: 7-9d

THE FANCIERS' MONTHLY,
SAN JOSE, CAL.

☞In responding to this advertisement mention GLEANINGS.

1891. 12th Year.

HEADQUARTERS IN THE SOUTH

For the manufacture and sale of

BEE-HIVES AND BEE-KEEPERS' SUPPLIES,

Early Nuclei, and Italian Queens.

Send for Price List.

P. L. VIALLON,
1tfd **Bayou Goula, La.**

Please mention GLEANINGS.

IMPORTED QUEENS.

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

CHAS. BIANCONCINI,
1-11d **Bologna, Italy.**

☞In responding to this advertisement mention GLEANINGS.

ELLISON'S EARLY QUEENS AND BEES.

ALL ITALIANS.

	April	May
1 Untested Queen	$1.00	$1.00
3 " Queens	2.75	2.50
1 Tested Queen	2.00	2.00
3 " Queens	5.00	4.00

Very best Select Tested for breeding, $3.00.
2-frame Nuclei, with any queen, $1.50 extra.
Safe arrival guaranteed. 7-8-9d
W. J. ELLISON, Catchall, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

ENTOMOLOGICAL NEWS.

This is the title of a monthly magazine published in Philadelphia at **one dollar** a year. It is managed by practical entomologists, and is a real help to those interested in this most fascinating study.

Insects accurately named for subscribers, and much valuable assistance given collectors.

GIVE IT A TRIAL. Address

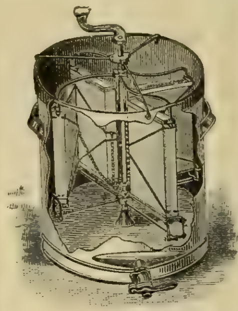
E. T. CRESSON, Treasurer,
7-9d **Box 1577, Philadelphia, Pa.**

☞In responding to this advertisement mention GLEANINGS.

BEES & SUPPLIES FOR IOWA.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address *Oliver Foster,*
5-tfdb Mt. Vernon, Linn Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.



EVERYTHING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

Established 1878.

SMITH & SMITH,

Wholesale and Retail Manufacturers of

BEE-KEEPERS' SUPPLIES.

KENTON, OHIO.

Price List Free. 4tfdb *Mention Gleanings.*

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM McCUNE & CO.,
21-20db **Sterling, Illinois.**

☞In responding to this advertisement mention GLEANINGS.

A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale, or retail. **Every thing** of practical construction needed in the apiary, and at **Lowest Prices**. Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. APRIL 1, 1891. No. 7.

STRAY STRAWS

FROM DR. C. C. MILLER.

MARCH 14, 1° below zero!

FEED, FEED, if the bees need.

THE FIRST TWO weeks of March were the severest of the winter.

SEPARATORS, according to replies in *C. B. J.*, are not so popular in Canada as on this side.

TEN CENTS' WORTH of honey contains more nutriment than 50 cents' worth of fat pork, says Allen Pringle in *C. B. J.*

THE bammy breeze of spring
Is now upon the wing,
When bees will sting
'Most any thing.

"THE BEE-KEEPERS' UNION," says Jas. Heddon in *A. B. K.*, "will soon take out a patent in the shape of a trade-mark." I believe in patents, but not in that one.

AND NOW E. R. ROOT has gone and written a piece which Hutchinson has printed in the *Review*. If that sort of thing isn't stopped, the rival editors will get to be friends yet.

A HUNGRY QUEEN, I am somewhat inclined to believe, is more easily introduced. She's so much engaged trying to get something to eat that she doesn't go around raising a row.

HEDDON THINKS (*A. B. J.*) that, if the trade-mark problem is abandoned, there is "nothing better than to keep still," and let adulterators have their own way. James, you're off.

DOOLITTLE suggests that the reason I did not succeed with his cell-cups was that I did not make the cups as deep as directed. I think it quite possible that he is right, and I'll try again.

DOOLITTLE says, in *A. B. K.*, "There is no time in the whole year that it pays as well to put a little money in feed for bees, where they need it, as it does at this time." Doolittle's head is level.

CONTRACTION. I was somewhat surprised to see the editor of the *Review* say, "With an eight-frame hive I have seldom found it advisable to contract the brood-nest of an established colony." But he adds, "I *would* contract the brood-nest of a newly hived swarm."

AND NOW No. Two (*C. B. J.*) wants to know about "closed frame friends." Out west is a family by the name of Frame, familiarly called the Frame friends. When they get too much tangle-foot, and are shut up in the calaboose, they are then called "closed Frame friends."

THAT DESCRIPTION of the cut on page 174 pretty nearly beat me. Finally I made it out by putting B for D, making it read, "B is a hollow point, etc." But it isn't up to A. I.'s usual clearness.

REV. W. F. CLARKE continues to quote me as authority for the statement that he is long-winded, although I've said I didn't say it. If he keeps it up much longer, I may begin to *think* what I haven't said.

THE ILLINOIS STATE BEE-KEEPERS' ASSOCIATION has been incorporated. The first meeting was held at Springfield. The State Legislature is to be asked for $5000 to help the bee-keepers' show at the World's Fair.

HUTCHINSON says he, Dr. Mason, and others, always read the editorials first. That's no way—at least not in GLEANINGS. Always begin at the first page. If you begin at the editorials, you might forget to read the first page.

MACPHERSON, of the *C. B. J.*, has been laid up with concussion of the brain from a fall on the ice. Hope not for long. No Mac and no "pollen-grains" in *C. B. J.* makes a bad hole. "Observer" and "No. Two" liven up the pages of the *C. B. J.* no little.

"BOTHER THE SALT!" That's what you say when it's all packed together and won't shake out of the salt-cellar at the table. Let me tell you how to fix it. Put about a teaspoonful of corn starch in a teacup of salt, and mix. That's the way it is on our table, and it always yields.

KEEP TOOLS BRIGHT. I once saw a seedsman care for his hoe after using it. He washed it off clean in a pail of water, and then, without drying it off in the least, he stuck it in a barrel of wood ashes. "There," said he, "no matter when I want to use that hoe again, I'll find it dry and bright."

SOMETHING will have to be done pretty soon about the editorials in GLEANINGS. They're getting to occupy altogether too much room, and are covering so much ground in an interesting manner, that in a little while I'll have nothing to manufacture "Straws" from. Something will have to be done.

L. D. STILSON, of the *Nebraska Bee-keeper*, had a colony which worked on red clover when others did not, and wants to know if any one else has had a like experience. He forgets about the red-clover queens of Medina and elsewhere. One year I had at least two colonies storing white honey when all the rest were storing buckwheat.

E. L. PRATT, in *Api.*, thinks I'm off in recommending full sheets of foundation in all cases—thinks I'm "old enough to know better than to hive new swarms upon all full sheets of foundation." He's rather got me there, for I really don't know much about new swarms—don't hive one a year. Still, if I did hive one, and had to use full sheets or empty frames, I believe I'd be so afraid of drone comb that I would use full sheets (if I thought brother Pratt wouldn't find it out).

My thanks are due Mr. S. Corneil for calling my attention to an error of mine. I said Cheshire denies that contaminated honey may be a cause of propagation of foul brood (p. 156). I was wrong. He says he has never, by the most careful search in the worst cases, found the bacilli in the honey, and has discovered that it is impossible for bacilli to multiply in honey; but he says, further on, that they "must occur in honey as an occasional contamination," and, still further, says, "My strong opinion is, that, commonly, neither honey nor pollen carries the disease, but that the feet and antennæ of the bees usually do."

GENERAL CORRESPONDENCE.

PREVENTION OF SWARMING.

THE EFFECT OF LARGE BROOD-CHAMBERS, EMPTY COMBS, AND THE ARTIFICIAL REARING OF QUEENS, CONSIDERED.

On page 168, Mar. 1, in answer to C. W. Dayton, Ernest says: "An unlimited capacity is quite apt to discourage, if not to prevent entirely, all swarming. Neither Mr. E. France nor the Dadants, who work on this latter principle, have swarming to any extent, and they do get the honey, you know." Now, we may admit at the outset that contraction tends to heighten, and expansion to lessen, the swarming instinct. Also, the facts concerning the Messrs. Dadants and France are no doubt true. But in drawing your conclusion I think you assume too much. Are you sure there is no other immediate cause to produce the effect? I think there are two entities that conspire to produce non-swarming, so far, at least, as the Dadants are concerned.

WHY THE DADANT BEES DON'T SWARM; NOT LARGE HIVES, BUT RACE OF BEES.

One is, that they have developed a rather non-swarming bee. The other is a secret that I learned from Mr. J. M. Hambaugh, whom I met for the first time in Springfield last December. We were discussing large hives, and working for extracted honey, in connection with the prevention of swarming. I referred to the discussion of the causes of swarming, conducted in Gleanings in 1889, by Dr. Miller and others. I wish you would look up the papers on pp. 412, 444, 530, 581. When I gave the gist of their views as outlined further on, Mr. Hambaugh acknowledged that they were about so. I then asserted that plenty of surplus room above, with sections all the way from empty to nearly completed, even over a large brood-chamber, would not prevent swarming, as I had often proven to my entire dissatisfaction. He readily agreed that such was the case. How, then, could the Dadants prevent swarming, as they never extract from the lower story? Then it was that Mr. Hambaugh said the reason, perhaps, was that their apiarist kept a close watch, and, as soon as the bees began to get a little crowded for room, he would raise the super and clap on a box of empty combs. I said, "I suppose, then, the idea is, that an entire super of empty cells, ready to rush the honey into, keeps the bees occupied and satisfied, keeps the honey out of the brood-combs so that they never become crowded, and thus keep down the swarming impulse." He replied that that was about it.

Now, please do not conclude that I am assuming too much. Just wait till I get through. Here are two propositions, as I have given them, worth thinking about, and I ask you to please follow me as I briefly discuss them. Let us see whether there is not a great deal more than mere capacity involved in this subject.

First, we must remark that, in simple terms, it is natural for bees to swarm. It is nature's plan to fill the earth with bees. To bring about swarming, the Author of nature has enacted certain laws. Here are some of her laws; and, for the sake of brevity, I quote or adapt from the series of papers I have mentioned, without further reference:

"The swarming impulse is the general restlessness of prosperity and enterprise, and the consciousness of powers within, which are not being fully occupied." The thing that most induces swarming is a "turgid condition of the vessels in the bee-anatomy in which are stored the supplies for future brood-rearing." This turgid condition is due to the fact that there is an undue proportion of house-bees to brood requiring feed, caused by the bees storing honey in the brood-nest. Meanwhile, this state of things causes a check of egg-production, which in turn causes the blood of the queen "to assume a peculiarly enriched character"—intensity, I should say. These are some of the conditions that impel bees to swarm out—a sort of hydraulic pressure.

I cite these views because they appear to me so evidently correct. If honey could be kept out of the brood-nest, and really allow the queen unlimited capacity, this state of things might not occur. But we know too well, that, when honey is coming in to any great extent, if there is no store room above, except as the bees build combs they will store it in the combs below—aye, and seal it up too. Who, that has often examined a brood-chamber which a swarm has lately left, has not generally found a preponderance of sealed brood, freshly sealed honey in the outskirts of the brood-nest, and many cells, singly and in groups, amid cards of sealed brood, filled with honey? This crowds the field-bees, and adds another element of discontent. It is altogether a cramming, crowding, pushing, driving process.

Now, don't you see where the value of empty combs comes in? Why, there is a vast system of storehouses above, already built, ready to garner the inflowing riches. And what can make a field-bee happier than a copious flow of nectar and plenty of room to receive it? It is not the disposition of bees to hamper the queen. That bees, when given combs above at a time when they are crowding the brood-nest with honey, will remove it and store it above, even much of that which they have already sealed, I have ample proofs. Hence the queen is allowed her full capacity; and to feed the larvæ, carry the honey above, ripen and seal it, seems to give the house bees sufficient employment. Thus the swarming fever is allayed, or prevented altogether. Does it not all look reasonable, probable, all but certain? This system, over a small brood-chamber, might not avail to prevent swarming; but I am very certain that a large hive, and working for comb honey, would not do it.

Mr. F. S. Wallace, of Clayton, Ill., like the Dadants, is troubled very little with swarming. I had several of his queens in my apiary last summer, and not one of them exhibited any disposition to swarm, although two of them were run for comb honey, and one of them never saw more than six frames. Such bees are apparently of more contented disposition, less aggressive and enterprising, and therefore, perhaps, if the truth must be told, of less account than the bees of the opposite kind. **Geo. F. Robbins.**

Mechanicsburg, Ill., Mar. 10.

[You have given us a good article, and I hope your position is right. Still, it does not seem to me that the two factors of race of bees and the giving of empty combs at the right time would account entirely for the non-swarming of the Dadant and France bees. You know, that, where bees have unlimited capacity in garrets, they do not swarm much.

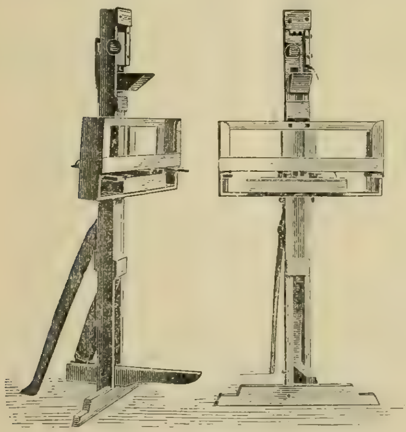
I should like to have the Dadants and Mr. France enlighten us further as to their methods, and how much of a figure their large hives cut in the matter.] E. R.

PHILO'S SECTION-GLUING MACHINE.

A MACHINE THAT PUTS TOGETHER AND GLUES SECTIONS AT THE SAME OPERATION.

I inclose a description of my automatic gluing-machine, for gluing and putting together sections, which I hope will be of enough interest to you and the bee-keeping fraternity to publish in Gleanings.

About four years ago, in the spring, I found, by the condition of my bees, that it would probably be necessary to use quite a number of sections; and after putting some of them together by hand I thought it would be wise to look up a machine for that purpose; and the only thing I could find was a "Manum machine," which I found in my nearest bee-keeper's shop. After using it a short time I could readily see the improvement over the former way of putting them together with a mallet.



MACHINE FOR GLUING SECTIONS.

The Manum machine did its work very nicely indeed; and the thought struck me, if I could devise some plan whereby I could place some glue right in the little grooves of the dovetailed part of the section, without making any extra motions, the machine would come nearer perfection; and in order to do this I found it would be necessary to change the plan and workings of the machine throughout. I soon had the thing figured out in my mind, and went to work to make a temporary machine of pine, which did its work perfectly; and the same little machine made of pine has worked for the past four years for three different bee-keepers, to their entire satisfaction.

A year ago last spring I bought 1000 V-groove one-piece sections for a neighbor, and, after looking them over, he concluded he would rather have the four-piece sections; so I had the one-piece sections left; and when I went to put them together I found my machine was not yet perfect—because I had nothing to glue the V-groove with. The next thing in order was to make an attachment that would glue the V-grooves with the same motion of the foot that presses the box together. I did this by placing a rack in front of the machine that will hold forty or fifty strips with the grooves downward.

Under the strips is a glue-pot with a roller in, and three little beveled-edged wheels on it that turn in the glue; and when the dovetailed corner of the box is pressed together, the bottom one of the section strips is pushed over the wheels, causing them to turn in the glue and in the V-grooves at the same time, thus gluing them perfectly.

The machine from which the photo was taken which I send you was nearly all made of wood. I am now making all the small working parts of the machine of metal.

Half-Moon, N. Y., Jan. 30. **E. W. Philo.**

[While I was in attendance at the Albany convention last December, my attention was called to the fact that there was a man there who had got one of the nicest machines ever invented by a bee-keeper. I have heard this so many times on other occasions before than I did not think much about it. But shortly afterward I was shown the machine, and was introduced to the inventor, Mr. E. W. Philo, as above. In his hands it certainly worked beautifully. He is a cabinet-maker, and a real genius. Well, I have not tried the machine myself, and it is possible that others could not make it work. Mr. Philo is going to send us a machine, and we hope then to try it.] E. R.

THE NONPAREIL BEE-HIVE.

ITS MANAGEMENT.

It has become an axiom among bee-keepers of experience, that, the more bees a colony has at the beginning of a honey-flow, the more surplus it will make. So true is the axiom, that the best hive ever made is worth little without plenty of bees at the right time; and it can hardly be the best hive unless it affords facilities for extensive brood-rearing in spring, and the early development of large colonies. And next, after successful wintering, the most profitable bee-keeping will ever turn upon these points. The flowers may bloom, and the nectar flow never so freely; but it will avail the apiarist little profit unless his hives are overflowing with bees at the opening of the harvest.

To get these large colonies, we must not only have protection for the brood against the cold nights and days of spring, but we can utilize the heat of the sun's rays to very great advantage. The heat absorbed from the sun by an uncovered, well-protected hive, upon a few hours of exposure at midday, will sensibly affect a colony for days afterward. Heat has been said to be life, and the sun's rays do certainly stimulate the life energies of both the queen and bees when applied in the manner stated.

Thus, we may promote extensive brood-rearing as well as the economical use of the stores, which will go much further where proper protection and care are given. I have estimated that a third more brood and bees can be obtained. at a saving of at least 10 lbs. of stores to every colony in spring by the management advised.

The protection given is by packing the brood-chamber in the winter case with excelsior sawdust, chaff, or forest-leaves. But it should be steadily borne in mind, and not forgotten for a moment, that any packing that may be used must be kept dry. Active brood-rearing in spring causes the packing to become damp, which then, instead of conserving the heat, carries it rapidly away, so that the colony would be far better off with no packing at all than a lot of wet material about the brood-nest. Here let me say, I consider fine sawdust one of the worst things that can be used, either in winter or spring, for protecting bees, and all because it will get damp, and can not be readily dried out. The packing must be of some coarse material that the air can readily permeate, and two or three inches of such packing is enough.

UTILIZING THE SUNSHINE.

To get the full benefit of the sunshine, the hive-covers should be removed every pleasant day about 10 A. M., when the bees can fly, or at least every few days, and the packing on top of the brood-chamber taken out, as well as any that may be found damp at the sides. The sun should be allowed to strike full upon the covering of the brood-nest, which I prefer to be a thin (¼-inch) board, cleated at the sides, placed a bee-space above the frames. About 4 P. M. the packing and hive-covers must be replaced.

Now, all this seems like a great deal of labor; but with light covers, and the use of excelsior, I find that it requires only about half an hour each day for the care of 50 colonies, and I do not think that in any spring my hive-covers and packing have been removed to admit the sunshine on more than ten days.

The extent of brood-rearing by this management by the average colony is considerably beyond the capacity of the hives in common use. In fact, the average queen is capable of occupying 1400 square inches of brood comb with brood, while the ten-frame Langstroth hive will contain but 1350. But there is required also two or three hundred square inches of comb for the stores of honey and bee-bread, so that the capacity of the brood-nest for the best results in spring breeding should not be less than 1600 square inches of brood comb. As the common eight-frame hive will contain but a little over 1000 square inches of comb, it will be seen that one such brood-chamber is quite too small, and two of them quite too large. When we use two of the Nonpareil brood-chambers in spring breeding we have the requisite capacity. As one storey* is just right for a swarm for the best results in working for comb honey with a queen-excluder, it is plain that the proper remedy for the eight-frame hives in use is to cut them down so they will take a 7-inch brood-frame; then make winter cases for them, and bee-keepers will speedily get on the road to profitable apiculture.

The spring management of bees requires care and attention, aside from the foregoing, that they have plenty of honey or its equivalent—sugar syrup. Every colony should have at least 10 lbs. on hand all the time up to near the time for the honey-flow to begin. Unless this is attended to the brood-rearing will be limited, and all the care given will prove unavailing in getting large colonies by the first of June, when the harvest usually opens in this locality. For spring feeding, Cutting's atmospheric bee-feeder is probably the best in existence. It may be used at the entrance, or over the brood-chamber. It is best used at the entrance to stimulate brood-rearing. No robbing or daubing or drowning of bees can take place, and I am surprised that an invention so useful and handy as this one should not be more extensively used.

Owing to the fact that, in a two-storey hive, the bees always begin brood-rearing in the upper storey in the spring, the progress of the egg-laying of the queen is the same as in the old box hive. No spreading of the brood or fussing with the brood-nest is ever necessary, except where building up a colony in adding a second storey. By the above management our colonies will have from 70 to 80 thousand cells of brood at the opening of the harvest, instead of only 40 or 50 thousand possible in the common hive; and every expert bee-keeper knows what this will mean. My next will tell how to get comb honey. Dr. G. L. Tinker.

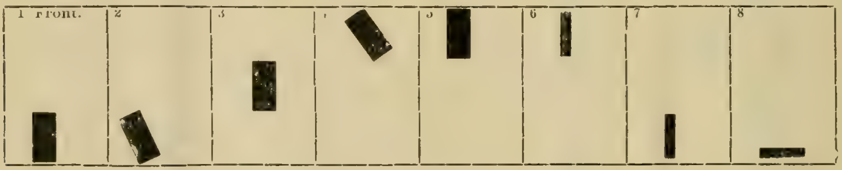
New Philadelphia, O.

To be continued.

THE BRICK RECORD.

CARNIOLANS.

The article by C. A. Hatch, Feb. 1, reminds me of one of many neglected duties; viz., calling attention to this method of keeping a record of the apiary. I have practiced it for about six years, and will testify to its great value. The great advantage it has over others is, that the apiarist can stand in one spot, and, by simply casting his eyes along the line of hives, see at once its condition; and if he sees a swarm emerging from a certain hive, he knows at once whether it is a first swarm or an after-swarm. If it were not useful at all as a sign, I have always considered a brick on the lid of a hive a necessity to keep the lids from blowing off in high winds; and in queen-rearing, of importance in preventing nucleus hives from blowing over. My method has required but one brick, and I will give you here the different positions of the brick which I have found to answer every requirement, either for a honey apiary or a queen-rearing apiary.



MORRISON'S METHOD OF KEEPING RECORD.

FRONT OF HIVES.

No. 1. brick parallel with and on the rear end of hive, "Has fertile queen, and in working order."

No. 2, brick on rear, and at 45° angle, "Queenless."

No. 3. brick in center, parallel, "Gave queen or cell."

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* Dr. Tinker requests this spelling.—Ed.

No. 4. brick on front, at 45°, "Queen accepted," or "Cell hatched."

No. 5, parallel on front, "Swarmed."

No. 6, parallel on edge or front, "Queen-cells."

No. 7, brick on end, "Immediate attention; needs feed; take honey; fertile workers."

No. 8, edge across rear of hive, "Neither queen nor brood."

Besides this, on one corner of the lid, in small letters, I keep such a record as this: "Tested queen, June, 1890." "Swarmed June 1, '90." "Removed queen May 10, '90." "Larva given, May 28, '90." "Give 1 qt. syrup." Each season these lids are freshly painted, and a new record begun; but the age of the queen is always preserved.

It is scarcely necessary to give any system of using the brick as a sign, only to illustrate the method; for if any one will only begin by using a brick in one position to indicate one thing, all the system needs to indicate every thing the bee-keeper desires will follow in turn.

CARNIOLANS.

I am not now and do not expect again to be in the queen-rearing business. Having also sold my entire apiary of Carniolans at Oxford, Pa., I can now give my opinion of Carniolans as a disinterested person: The only fault that has been urged against them with any show of reason at all is, that they swarm too much. Well, the same has been charged to every other race with just as good reason, as I well know from experience. I am very sure it is a more prolific race, and they are better honey-gatherers. Give a colony twenty, or, better, thirty brood-combs in a Simplicity hive about the middle of April, and on the first of July extract all, and compare with any other race as to honey gathered; and if the start was fair, the product of the Carniolans will be ahead.

S. W. Morrison.

Colorado Springs, Col., Feb. 6.

DAYTON'S QUEEN-RESTRICTOR, AGAIN.

DAYTON'S REPLY.

If I remember correctly, I sent to you two articles—one upon the queen-restrictor, and the other upon contraction alone. You published my article on contraction, gave the illustration of the restrictor, and, in the foot-notes, wrote in reference to the restrictor from a contraction view, and not from a restrictor view, as you may see from my references. What my article said about contraction doesn't do justice to the restrictor.

You say (in foot-notes, p. 168), "It is considerable of an art to manage so as to make contraction a real benefit," which I agree to; but I think that, what is art or science now, will, by use and practice, become ordinary, and not be deemed as extraordinary. The earlier the study is begun, the sooner learned.

You say, "An unlimited capacity is quite apt to discourage, if not prevent, all swarming."

You did not notice that the restrictor is provided with a reversing device wherewith the queen-cells may be inverted to prevent swarming by their being destroyed before they are mature. My restrictor is reversed the same as your single combs are reversed—the five combs being handled (and even may be considered) as one comb. Forty colonies may be thus manipulated in the space of one hour. If the frames were inverted singly it would require four hours for forty hives.

You ask whether my restrictor "is not a good deal of work." You have the queen-cells, queen, etc., all in a shape so as to reverse with the same labor that is required to reverse one single reversible frame.

Reversion causes as much brood to be reared upon my five frames as is usually contained on seven or eight; and this brood is mostly included in the restrictor.

You appear to think that my zincs between the top, bottom, and end bars are numerous, and require taking off often. When the frames and zinc strips are once put on they are *almost* never removed; but the *side sheets* are easy of manipulation, and require adjustment once each year—just before and after the harvest. A bee-keeper visited me a short time ago, to examine my restrictor, and said:

"Why, Mr. Dayton, it would be a great deal of work to take off and put on these *hoop-like* strips of zinc often."

I asked, "Why would you take them off?"

He answered, "To find the queen."

"What would you want the queen for?"

"To clip her wings."

"Why clip wings?"

"To prevent her going off to the woods."

"How could she get out of the cage to go to the woods? and how could bees swarm when the reversion of the combs destroys the queen-cells?"

"I did not think to study that out. Why, you would never have a swarm in the world, with such an arrangement."

Let the queen remain unclipped. The restrictor will reverse quicker than you could clip a queen's wing, even if you have her already caught.

In the notes, the Dadants and Mr. France are quoted as using unlimited space. But you forget that they are principally producers of extracted honey — when reversion, contraction, and exclusion, are more applicable in the production of comb honey. Mr. O. O. Poppleton was the most successful honey-producer in my locality—using a 26 or 30 frame hive for extracted honey; but when he changed to the production of comb honey there was a very great change in the size of his hives, to a small size.

I find no reason for handling brood-nests frame by frame, but all together—several frames at once. This handling the frames severally, by learners, is more curiosity than necessity.

As to Heddon hives being less labor, it is as easy to attach my sheets of zinc as it is to put on the honey-boards you speak of; and my plan enables me to retain the old suspended frame as Mr. Langstroth gave it to us, which is the frame in size or form that will outwear and outweigh any other frame that will ever be invented.

C. W. Dayton.

Clinton, Wis., March 20.

[The first paragraph calls for explanation. By an oversight, the engraving appeared with the contraction article rather than with the one on queen-restrictors. As the latter did not appear, and as the former *involved* the subject of restrictors, I concluded that the cut belonged to it.

I am very glad to give place to Mr. Dayton's article, as above. As it covers most of the points brought out in the other article, it will be sufficient. I thoroughly indorse the idea that he emphasizes in the next to the last paragraph; namely, that there is "no reason for handling the brood-nest frame by frame," and that they should be handled "all together—several frames at once." Mr. Heddon deserves credit for emphasizing a similar plan. In a majority of cases, with the Hoffman frame, and also the closed-end Quinby, I am satisfied that a satisfactory knowledge of the interior of a hive may be obtained by handling three or four frames at a time—that is, I mean in the production of honey. I have no doubt that friend Dayton can get along in a similar way with his restrictor.

If my memory serves me right, it was decided in the Question-Box that reversing does not invariably destroy queen-cells. How is this, friends?] E. R.

KEEPING A RECORD OF QUEENS.

FRIEND M'INTYRE TELLS US HOW HE DOES IT.

Californians have been feeling a little blue for a few months on account of the absence of rain, hence a scarcity of articles from this quarter. The rule is, no rain, not any thing—not even words; but we have just had 8 inches of rain in 36 hours; and although bridges and roads are washed out, and trains stopped, the faces of the people wear a smile. We can go to work now with some heart, to prepare the bees for the coming season. Clean up your apiary and make it look nice before commencing to overhaul the bees. You will feel happier at your work if the surroundings are pleasant. I find every queen in my apiary in the spring, before the bees get very strong, and clip every one not clipped. I know positively, that every queen found without her wing clipped was reared last season, and mark her in my record-book as one year old, although her birth-day has not arrived yet. The age of every queen found with her wing clipped is advanced one year; and those marked two years old are usually superseded near the close of the season.

Hive No.	QUEEN.				C'bs br'd	Lbs h'n'y
	Str'in	Age.	Gr'de	REMARKS.		
1	S.	1	x	Breed.	6	30
2		1	2	Hybrids.	4	20
3		1	1		4	20
4	F.	1	x	Breed.	5	20
5	S.	1	x		5	20
6		2	3	Feeble.	4	50
7	A.	1	1		4	20
8		2	1		4	25
9	H.	1	x		5	30
10		2	2	Crippled.	4	20
11	H.	1	x		4	25
12	A.	1	x		5	30
13		2	1		6	20
14		2	2	Dark.	4	20
15	S.	2	x	Breed.	7	30
16	O.	2	x		6	40
17	H.	1	x	Breed.	5	36
18		1	1		3	20
19		1	1		5	20
20	O.	2	x	Breed.	7	30
21		1	1		5	5
22		1	1	Hybrid.	4	30
23	H.	1	x	Breed.	6	40

This is a page from my record-book, and contains all the record of queens I care to keep. It is small enough to carry in my pocket. When I had few colonies I kept a larger book and gave more space to each colony—often a whole page. As my apiary increased, my record decreased until I got a whole row of 23 hives on one page. My apiary contains 22 rows, and each row is lettered. When I wish to find the record of a certain queen, I place my thumb on the letter on the margin of the book corresponding to the letter on the row, and open the book instantly at the right place. Every hive is numbered. The numbers run from 1 to 23 in each row, and are kept on a piece of board 4x10, driven into the ground by every fourth hive. The letters representing the row are also on the stakes just above the numbers. The page almost explains itself. The different strains are marked with letters—S for Syrian, H for Root's honey strain, etc. The next column gives the age, 1 or 2 years. I often keep breeding-queens three years. The next column gives the grade or quality. I make 4 grades—X for extra, 1 good, 2 medium, 3 poor. Remarks explain themselves. The brood and honey columns only serve to equalize in the spring, and are not kept up through the season. I should take 20 lbs. of honey from No. 6, and give it to No. 21, and a comb of hatching brood from No. 20, and give it to No. 18, and that row would be all right.

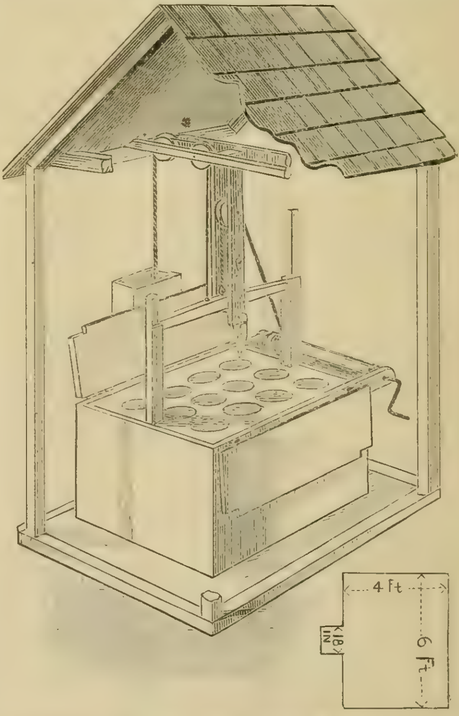
I have a system of book memoranda for queen-rearing, which suits me much better than slates, cards, stones, or bricks, on the hives. My apiary is 150 feet wide and 300 feet long, over an acre, and it takes too much time to find the colony that needs attention by any system of marking on the hives. But I can write about any thing better when I am working with it; and as this article is already long enough I will leave it for another time. J. F. McIntyre.

Fillmore, Cal., Feb. 24.

A DAIRY WELL.

HOW TO MAKE ONE.

I have never been north, and I don't know what the needs of the people are on the farm; but I do know that every Southern farmer needs what I have termed a dairy well. The originator of the idea is Mr. Wm. Bibb, of Westminster, S. C., formerly of Bartow Co., Ga. I am aware that this is a little out of the line of a bee-journal; but milk is closely associated with honey, in the Bible, and, in fact, I like them



A SUBSTITUTE FOR ICE-HOUSES AND REFRIGERATORS FOR WARM CLIMATES.

pretty closely associated at the table, with a little butter thrown in. Besides milk, this well is good to keep pork or other fresh meat in, in summer, away from flies; also to keep any thing from freezing in winter.

For ordinary use the well should be dug 6 ft. by 4 square, with a gutter, or groove, down one side, 18 inches square. It should contain two or three feet of lasting water. It should be in easy reach of the kitchen, and attached to the house if possible. The curbing should be no larger than the well. A platform, which fits inside of the well, slides up and down between two timbers, which rest on the bottom of the well, and are long enough to reach up 3 ft. above the curb. These two timbers should be planed. The framework of the platform has a board nailed on each side of it, forming a groove which fits on the upright timbers at each end of the well. This makes it rigid, and keeps it level. The circular black spots on the platform represent openings for vessels. The piece that holds the wheel, over which the rope passes to the windlass, is prolonged so that, when the platform is just even with the top of the curb, an iron pin is inserted through it and the top-bar of the platform frame, and holds it there. There is another rope, and two wheels. This rope has a heavy weight attached, to assist in raising the platform from the bottom of the well, with heavy loads. These weights go down into a box formed of four wide planks, which occupy the gutter, or groove. One lid opens up against the weight-box, and fastens with a thumb-button. The other is hinged so as to hang down by the side of the curb when open.

I think what I have said, and the sketch, will make it plain. R. W. J. STEWART.

Sonoraville, Ga., Feb. 2.

[Friend S., you have given us something of very great value, I am sure. The custom of letting down a pail of butter and other kinds of food into the well, to keep them cool, is almost as old as the hills, and I have several times wondered why somebody did not invent a dummy or elevator to run provisions into the cellar, or, still deeper, into a well, where ice is not to be had, or is inconvenient; and most farm homes find it a good deal of trouble to have an ice-house simply for their own use. It is my opinion, however, that, to have the water real cool and nice, it should be used for watering stock or something of that sort. I saw a statement recently in one of our agricultural papers like this: A certain well gave such cool nice water that it had a reputation for some distance around. As this well was close to the house, however, and some distance from the barn, the owner dug another one by the barn, for greater convenience in watering his farm stock. As soon as they stopped drawing heavily on the water near the house, however, it began to get warm and insipid, and the water at the stables improved in the same proportion as they began to draw on it. This taking water away, or removing it from the well, produces a running stream or running spring. Of course, the cheapest way to get this superfluous water out of the way is to do it with a windmill, providing you can afford the first expense. By the way, friend S., why would not the arrangement you have given us take the place of a cellar to a considerable extent, and at the same time save the good wife the labor of running up and down stairs? Another thing: A good many have discovered that rain water is more wholesome for them than the hard water from many of our wells; therefore you can catch your rain water from a roof in clean vessels, and then let it down into a deep well to cool.]

DEACON HOMESPUN AND HIS "KNOWIN' BEES."

ALSO SOME OF THE DEACON'S PLAIN-SPOKEN OPINIONS IN REGARD TO "BRO. RUTE."

Having been a reader of GLEANINGS for the last 13 years, I have become very much pleased with it and attached to it, and I often recommend it to others, and have now and then induced one to subscribe for it. But I found one who did not want it at all. I went over to Deacon Homespun's to make a call, see his bees, and I naturally asked him to take GLEANINGS. He said that he did not want it, for the reason that he had decided "not to read any more of Rute's writing till he wrote something kinter interestin'."

I remarked that *I* considered it all *very* interesting. Well, he said that he "had got Rute's A B C book, and did not think much of it."

"Why have you arrived at such a conclusion about the A B C book?"

"Wal, ile tell you. Now, he says a great deal about interducin' of queens; and I don't think much of his way, for I have got a way that beats it all holler."

"Now, deacon, have you any objections to telling your plan of introducing queens?"

"No, sir, I hain't. It is this: When you have a queenless colony, jest hang in a keard of brude, and the bees will raze a queen right there in the hive. Now, don't you see that this way will save all this fussin' about interducin'?"

"Yes, deacon, that is very true. You can get a queen in a hive by placing in the hive a card of brood, and the queen will hatch there and *be there* without much trouble, etc. But you see the honey season is short; and while you are waiting for your queen to hatch and get ready to lay, much valuable time is lost so far as *that* swarm is concerned; for, you see, it takes about a month after the queen commences to lay before her bees are ready to work; therefore by that time the swarm will be very small, and be of little profit to you for that season, for the old bees are all the time dying."

"Well, that ain't the case with *my* bees—they don't die off fast at all."

"What kind are your bees?"

"Well, they are a mixture of bees from the Southern States, with *my* kind. You see, a few years ago I lost most of my bees, and in the spring I sent south and bought some to make up my loss in the winter."

"Did you get *queens* with your bees from the South?"

"No, I only jest got bees, and put with mine. I *had* queens."

"Well, don't you know that the bees you had from the South soon died, and therefore you had only *your* kind as you had before you bought?

"Now, deacon, I see you have the two-story Root chaff hive. How did this happen?"

"Well, you know I told you that I had Rute's A B C book, so I took the book to a shop in town and had all of my hives made accordin' to the book."

"Well, then, you *do* think something of Mr. Root's writing, after all; so I will leave a copy of GLEANINGS with you; and when I come again I hope you will have decided to have it mailed regularly to you."

As I handed it to him he said, "I think that Rute is a kinder of a big *I* and a little *u*," at the same time pointing to the foot-notes.

"Now, deacon, as to the remarks of Mr. Root that you now refer to, I think I can say, without fear of contradiction, that his readers would not have that part of the matter left out on any account. But, again, in regard to the chaff hives you use, I see you have them all numbered on the front side with large figures, which I consider a good plan on several accounts. One is, if you wish to refer to any one hive you can do so by its number."

"Wall, I will tell you what I had it done for. It was so the bees could tell their own hives."

"I don't know, deacon, that I fully understand you. Now, there is *22* and *23* side by side; do you think your bees can tell 22 from 23?"

"Well, I don't know about *your* bees or *other* folkses; but *mine* can tell 22 from 23 *every time*. *My* bees know more than you may think they do. They know me when I come around, every time. Sometimes I lay down on the grass, watchin' for them to swarm, and sometimes a bee will come and buzz all around me. They will look in my *eyes* and in my *ears*, and look me *all over;* then they goes away. Sometimes when I am comin' from town they will come and meet me, and fly all around me."

"Well, I shall have to bid you good-by; but I want you to read GLEANINGS; and when I call again I hope you will like it well enough to subscribe for it." W. S. WRIGHT.

Battle Creek, Mich., March 18.

[Friend W., will you please make the deacon a present of GLEANINGS for a year, and tell him that "friend Rute" sends it willingly as a return for his very candid and outspoken opinion? By the way, that last expression of the deacon's is a gem. I can imagine every reader of GLEANINGS, who has had a few summers' experience, leaning back in his chair and taking a good hearty laugh about those "knowin' bees." Sometimes they meet us on our way home, and look into our eyes and ears with more inquisitiveness than is really comfortable; but if the deacon enjoys it, we are very glad.]

NOTES ON RECENT DISCUSSIONS.

COARSE WIRE CLOTH OVER ENTRANCE IN WINTER, BY REV. T. C. POTTER.

A recent question propounded to the Solons of the apiarian fraternity, was as to whether it is advisable to use wire cloth over the entrance, when wintering in the cellar. After an experience of ten years with a small number of colonies each year (I can handle only a few and be faithful to my regular duties), I am led to the belief that bees winter nicely in a dry cellar when coarse wire cloth is used over the entrance. About putting it across the bottom and top, I can not say; but in my own case I have never taken either bottom-board or cover off. Simply put a good, dry absorbent cushion over the frames, lay the honey-board over it to keep it smoothly down, adjust the cover, bend a length of wire screening to fit the entrance all along, and it is done. At any time if you wish to feed at the entrance, as spring approaches, slip the screening away and lay your feeder there. I have found only a little feed necessary in spring, to start the queen to laying. For two weeks before the date of this writing, our thermometer has been about zero every night; and yet upon examination I find that I am well stocked with brood. I have never lost a single colony, nor observed any but good results. Fixed thus, they have plenty of air, do not ramble out and die on the cellar floor, and the mouse-pest question is settled. Extensive apiarists may find a removal of the bottom-board necessary to crate the hives rightly in the cellar; but for those having only five to twenty colonies, like myself, it is not necessary. If there are some dead bees on the bottom-board, as there usually are, I simply keep a bent hook of wire, and, removing the screen occasionally, draw them out.

ARE CELLAR-WINTERED BEES MORE SENSITIVE TO THE COLD WHEN SET OUT IN THE SPRING?

I believe it to be a little more than a notion, that bees wintered in the cellar where the thermometer ranges from forty to fifty will be more sensitive to cold and changes when taken out in the spring. Apiarists must remember that bees are not like human beings in this respect, and so we can not judge them by ourselves. The good Lord, who has made every thing right for its own conditions, has provided our bees with an instinct as well as aptness for hibernation; and when a cold spell comes they pass into stupor such as renders them largely insensible to the cold or changes. A good hive, plenty of stores, and care upon the part of the keeper, are all the specifications necessary, provided the queen is fruitful and the bees ordinarily numerous.

A PECULIAR EXPERIENCE WHILE WORKING AMONG THE BEES.

For some years I have been studying my own physique as it has been affected for better or worse by my work among my bees. I have found that breathing the strong, acrid odor that comes from a newly opened hive in summer, when there is unripened honey in abundance, gives me a catarrhal cold every time. I call it this, although I can check it at once by snuffing tepid salt water up the nostrils. Without this treatment I should have a "cold in the head" for two or three days. Some one may fancy it is due to getting into a perspiration and then cooling off too quickly. That occurred to me at first; but with experience I have found that it is not due to any thing except the acrid fumes from the bees and hive. Has any other bee man or woman ever observed this effect? It is very quickly and invariably done in my own case, even if I inhale much of the odor from an observing-hive in the house.

AMMONIA FOR GETTING PROPOLIS OFF THE FINGERS.

A lady recently spoke of the necessity for gloves, because of getting propolis on her fingers and under the nails, and having difficulty in removing it. If she will take her bottle of good strong ammonia, and a cloth, and rub gently over the soiled finger, getting some of the liquid under the nail, she will find that this alkali will turn the propolis stain a sunflower yellow in a moment after it is put on. After this treatment, don't be in a hurry, or frightened at that worse stain. Let the ammonia act a moment or two; then wash well with soap and water, using a nail-brush if necessary, and all will come off nicely.

A CAUTION AGAINST CATCHING COLD BY USING THE WATER TREATMENT.

Is it not well to caution your readers about taking cold, after making use of the warm-water treatment, of which you addressed us at length in GLEANINGS for March 1st, particularly if it occurs in the ordinary place out of doors? When hot water is used, perspiration ensues—especially if more than one injection is taken, and absorption through the kidneys and internal membranes is occurring. T. C. P.

Cedar Falls, Iowa, Mar. 14.

[Thank you, Bro. P. I knew all the while when our big guns (begging their pardon) were telling us that wire cloth over the entrance would not do, that they were not quite orthodox. Thanks for your suggestion in regard to propolis, and also for your caution. I have taken cold once in the way you suggest, but since then I have been more careful.]

OUTSIDE CASES FOR WINTERING.

J. A. GREEN REVIEWS THE MATTER.

If there is one thing more than another that I have felt disposed to criticise in the way GLEANINGS is edited, it is, that, in your foot-notes to articles, you seem to think it necessary to find some fault with the ideas therein presented, and that, under the pressure of this seeming necessity, objections are made, that, while usually real and vital ones, are often unimportant, to say the least. Your supposition that snow would beat under my covers of corrugated iron is well taken. It would be a real objection if it were true; but I am happy to say that I have not had the least trouble from that source. I might, perhaps, if it were not that the cases are filled to overflowing with packing material, upon and into which the corrugated cover is crowded tightly, and then *held* there.

But when you find fault with the board and stone as too much rigging, I must smile. The stone is all that is really necessary, though there are few bee-keepers who can not easily find some kind of board eighteen inches or so long for each hive, and duplicate them every year if necessary. Some of my covers have a strip 1x1½, nailed across each end of the sheet. With these the cross-boards are altogether unnecessary, and the stone may be replaced with hooks, or something similar; but I do not like them, as they are more expensive, and because they can not be nested together. With the plain sheets, twenty-five may be stored away out of the weather in the space that one of your covers will occupy. The stone, or its equivalent, I regard as a necessary part of each hive's furniture, summer and winter. I have some large paving-bricks that are a little more ornamental.

When it comes to looks, it may be that my packing-case might be improved upon—at proportionate expense. I must confess, though, that, while I take some pride in the appearance of my apiary during the summer, I do not care quite so much about its looks in the winter. A mantle of snow softens and beautifies all harsh outlines; and if there is none, the severe plainness of the packing-cases is only in keeping with the general bareness and desolation of objects of nature. Still, if the cases are made of better lumber, and painted, they may be made to look very neat.

I doubt very much whether a good cover can be made that will not cost much more than the corrugated iron, especially when durability is considered. Painted muslin *may* do. I have never tried it; but I think it would be found unsatisfactory, and, in the long run, expensive. Roofing-paper I have tested thoroughly. It is undesirable, except for something cheap and temporary. The material for a tin roof costs as much as the iron, besides the expense of making it.

Your cases, allowing only ¾ of an inch on each side for packing, are not nearly large enough. It is well enough to talk about putting the packing material into a cushion in the shape of a thin ring, to go within this ¾-inch space; but did you ever try it?

I do not think the "dead-air space" at all practical. Theoretically it is all right when it *is* a dead-air space; but in practice this can never be secured, and can only be approximated at greater cost than packing. One very real advantage of packing is, that, in the spring, it absorbs heat from the sun during the day time, thus keeping up the temperature of the hive at night. If you want to test this, take two vessels of glass, tin, or any thing you choose. They should be air-tight to make the experiment conclusive. Fill one with sawdust, and leave the other empty. Put them in an oven or other warm place until they are thoroughly heated through; then put them in a cool place and see which retains heat longer.

I have just received a letter from M. M. Baldridge, in which he says: "The Oatmans discarded cellar wintering (say ten years ago), and thereafter left their bees on summer stands, packed in large boxes with chaff on all sides. . . . . . Their packing-boxes were made large enough to hold four colonies, and they had an entrance on each of the four sides. They put up their bees thus very early—say in September or October, and did not remove them from the packing-boxes until June following. . . . . . The Oatmans wintered bees thus for several winters with fine success. They are now nearly out of the bee-business; but if they were to begin again they would pursue the same plan. At one time they had some 700 colonies scattered about the country. . . . . . Their packing-boxes had bottoms, were made of cheap lumber, and cost about $1.00 each."

The Oatmans, I suppose you know, were very successful honey-producers at Dundee, Ill. They are now owners of several creameries, I believe. J. A. GREEN.

Dayton, Ill., March 10.

[If I criticise in a foot-note I do not do so for the sake of it. I do not *intend* to make any criticism unless there is something that appears as a *real* objection. Very often, to call out further discussion, I enter a criticism in order to get the writer to elucidate a little more fully. I did not do so with that in view in your last article; but whatever the intention was, that foot-note has called forth a valuable communication in defense.

This time, friend Green, I shall have to assume the defensive, as you assume the offensive. You have cornered me up in several places, and I do not really know whether I can get out or not. Now, then, to the points of your article:

I am glad to know, that, while the snow would apparently beat under the covers, it does not in reality. So, my criticism No. 1 is washed out.

About that board and stone. I may be wrong, but I still *hang* to the point that they make a good deal of extra rigging. I know there are a good many practical bee-keepers who use them. They want them summer and winter. But when you add to the toil of going through the *whole* apiary, by lifting off a ten or fifteen pound stone for *every hive*, you add just so much to the cost of producing a pound of honey, to say nothing of the extra labor and wear on the man. We have never used stones in our yard. It is only rarely that we have winds that lift the covers off the hives; and W. Z. Hutchinson, of the *Review*, expresses himself in a similar way. Perhaps this difference of opinion might be explained by locality.

As to looks, I do not know that I would urge that point very hard. Your outside packing-cases, I must admit, are rather pretty than otherwise, although I am opinion that a case such as I have described would look neater. After all, it is not looks, but dollars and cents, we are after, in bee-keeping, so I will yield to you on that point.

Now about that air-space. At first I did not think it was possible to maintain practically a *dead*-air space; but those outside cases that I described, made of ⅜ lumber, and dovetailed, with a tin cover, will, I think, hold water. When they were put together I told the painter to be sure to chink in paint wherever the joints seemed to be possibly a little loose, and he did so. Now, these outside cases are pushed down into a banking of sawdust, which, being more or less wet, freezes around the outside bottom edge of the case; so you see that we have, practically, a dead-air space. In time these cases might, however, get a little leaky.

Now as to results. So far in our apiary we can detect no difference between the air-"packed" and chaff-packed. Yet I will admit that, before spring, we may see a woeful difference. I might say further, that, on account of dysentery, three colonies died in chaff hives, and one died in dead-air-space hives. Still, one straw does not show which way the wind blows. I consider it only negative testimony; that is, so far there is nothing particular *against* the dead-air space. I have never tried the experiment, but I believe the packed space will cool slower than the air-space. But, mark this: We want all the sunshine we can have. One writer—I do not know who it was—intimated that air-spaces were better because they would warm up quicker, and so give the bees a chance to turn over in their dose. You see, this fact will partially compensate for the extra protection of packed spaces.

About those rings of packing. No, I never tried them—that is, not exactly that thing. You know I spoke of this as being one of the provisional things. If the thing worked successfully here at the Home of the Honey-bees, it is no sign that it would do so in other localities. I merely outlined a few things that I wanted to test, and I wanted others to try, and this was one of them.

Now, friend Green, I thank you for your criticisms, and I am quite willing to have my air-space idea snowed under. *My* air-space, did I say? No, I do not quite mean that. It is a very old thing that I have been reviving of late, just as I did thick top-bars and fixed distances.]

E. R. R.

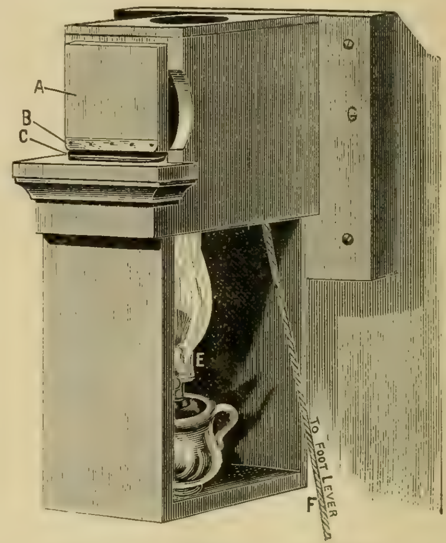
THE HAYES FOUNDATION-FASTENER.

A GOOD MACHINE.

Friend Root:—As per request I herewith inclose a photograph of my foundation-fastener. I can imagine some one exclaiming, "This is an improved Miller machine, as the principle is a metal plate." But the fact is, I claim entire originality, not knowing that any other persons were working or had worked on the same line. How true the saying, "There is nothing new under the sun." Really, I imagined I was going to present to the fraternity something that would certainly place me in an enviable position among the great in bee culture. I had already imagined myself in one of those beautiful half-tones in the leading apicultural journal of the world, including an autobiographical sketch of the inventor. But, alas for my fond hopes! Miller gets there, and I am left.

But notwithstanding, I claim the only practical machine extant. The model was constructed over a year ago. I have since manufactured several for supply-dealers and practical apiarists, and they are pronounced by all an unqualified success. The rapidity and perfection of its work are astonishing. I can readily put in 10 full sheets in one minute. This is about as fast as one can handle the pieces, being perfectly centered in the section, and I defy one to be loosened from the section without tearing it off. For putting in foundation *a la* C. C. Miller, 3¼ at top and ¾ at bottom, it works to perfection. It requires no warming preparation of the foundation. It simply should be warm enough to bend without breaking. Its work during the winter months, when other methods are so annoying, is simply perfection.

The most important feature of the machine, as compared with any other in the same line, is the guide-block, which centers the foundation without any effort from the operator. The steel plate *c* is controlled by the treadle, not seen in the picture; consequently it is adjusted on the floor at the right of the machine. The plate projects below the head-block *a*, sufficiently far to extend beyond the center of the section. There is beneath the plate space, so that, when a section is placed on the guide-block, it passes beneath the steel plate. The contact of the hot plate with the wood is controlled by the treadle, as you can hold it back until you desire to use it. But I find the instant occupied in picking up the foundation gives the section the proper warmth to cause perfect adhesion. The foundation is picked up between the thumb and forefinger of each hand, and the lower edge is pressed against the guide-block, coming in contact with the hot plate, which is instantly withdrawn by pressure on the treadle; at the same time the foundation is dropped on the section, firmly adhering to the same. I consider this the only correct principle by which to fasten foundation.



HAYES' FOUNDATION-FASTENER.

Mell R. Hayes.

Washington, Kan., Nov. 20.

[Our experience with machines for putting foundation into sections by the aid of a sliding heated plate or tongue has not heretofore been satisfactory. But Mr. Hayes sent one of his machines, with a request that we give it a trial. We did so. It does the work neatly, rapidly, and accurately. It has this advantage over machines that *press* the foundation into the wood, *a la* Clark, in that there is no foundation wasted—an edge turned over and pressed into the wood. Your humble servant, E. R., tried it a good deal; and although it worked rather hard (through no fault of the principle, however, but because the working parts were a little tight) I felt satisfied there was something in the principle. I said, when I first looked at it, that it was copied after Arthur C. Miller's machine; but Mr. Hayes' letter shows that he also was original. It has the advantage over the Miller machine in that the block A guides the foundation to the center of the section.

Briefly, the mode of operation is this: A section is slid under the tongue C, and all around the block A, the latter being just half the width of the section. A strip of foundation is picked up, and held against the surface A. The foundation is allowed to slide down and strike the heated tongue C, which, being withdrawn by the treadle, in connection with the cord F, leaves the foundation with a melted edge when it strikes the section. In an instant it cools and adheres.

The principle is all right; but the machine as made, it seems to me, is a little expensive, and possibly may be simplified a little more than this.] E. R. R.

CONTRACTION AND COMB HONEY.

THE RIGHT AND WRONG KIND AGAIN, AS DISCUSSED BY DOOLITTLE.

I wish every reader of GLEANINGS would turn again to page 167 of the present volume and read the first part of C. W. Dayton's article on contraction. It is a rare thing that so much truth is brought out in so little space. I know nothing about his "queen-restrictor," and do not refer to that part. I have been very much surprised to see the grounds taken of late in GLEANINGS by its managers, to the effect that contraction methods tend to give only a medium force of bees in the honey-harvest, while all that I have ever written on the subject, and the most I have seen, has been to prove that the contraction plan, if rightly worked, will give a "rousing colony" during the honey harvest, as Mr. Dayton says, and as few bees at all other times as is consistent with having this rousing colony just when we want it. For the benefit of the younger readers of GLEANINGS, and to brush up your memory a little, Mr. Editor, let me say a few words as to how I manage bees on the contraction plan, to secure a large yield of comb honey. As the older readers of GLEANINGS will remember, I formerly worked my bees on the side and top-box plan combined, therefore all of my hives are two feet long inside, while the brood-chamber proper is only 13½ inches inside, 5¼ inches on either side of this being set apart for the side boxes, which, added to the 13½ inches, makes the two feet. Since I adopted the lateral plan of working for comb honey, as described in a late number of GLEANINGS, each of these side-box apartments is filled with chaff, or has a chaff cushion in there, so as to shut the bees out and protect them for winter. When spring arrives, the bees in these hives thus fixed are stimulated to rear the greatest amount of brood possible, by one or all of the known plans to accomplish this object, till the nine frames which fill the brood-chamber proper are filled with brood. As the weather is always changeable in the spring and early summer, the chaff packing is a great help to the bees, by way of enabling them to maintain an even temperature, and thus the hives are filled with brood a little earlier in the season than they otherwise would be, as all know who are now recommending chaff-packed boxes for single-walled hives as soon as set from the cellar. To digress a little:

I must say that I think those who are telling that an air-space is as good as a space filled with chaff or straw are making a great mistake. Let me prove it to you. On several occasions, from ants working in my packing, and for other reasons, the chaff or fine straw was taken out of one side, or perhaps one side and one end, during the summer and left out till cold weather came in the late fall or early winter. At this time, when I came to pack these vacant spaces I invariably found the bees clustered up against the side or sides which were packed, and away from those where the packing was removed. If the packing was removed from one side I would find the bees clustered in a half-sphere against the opposite side; if removed from a side and an end, the bees would be clustered up against the inside opposite corner, lying right up against the wood along the two packed sides as far out as the cluster came. If all four sides were packed, then I found the bees clustered in the center of the hive in all directions. If this does not show the value of chaff packing, then I was wrong in allowing it to convince me that it were better to have my bees, all of them, in fully chaff-packed hives, as they are now. But, to return:

When these nine frames are filled with brood it is generally too early for swarms to issue to the best advantage for the production of honey; and desiring all the bees possible at this season of the year (these bees are in reality our crop of honey), I remove one of the chaff cushions from one of the five-inch spaces, and place three frames of brood, taken from the brood-chamber beyond the slotted ¼-inch division-board (which was placed there when I used side boxes, the bees passing through this slotted board to the boxes) when empty combs are placed in the brood-nest in place of the removed frames of brood. In a week the other end of the hive is served in the same way, which gives me, as will be seen, 15 frames in a hive, thus securing a large force of bees right at the commencement of the honey harvest, with little disposition to swarm thus far. As the brood in the frames set over in the five-inch spaces should be as nearly all sealed when set there as possible, it will be seen that, in 12 days, the brood from these combs should be all matured; and as the queen rarely goes into these spaces to deposit eggs, I have these combs empty of brood, or nearly so, by the time the wide frames of sections used on the lateral plan need to come out over these side apartments. They can now be taken out and reserved for new swarms, or used for tiering up for extracted honey. If any of the combs I wish to take out still have brood in them, they are just as good for the extracting super over a queen-excluder, or they can be used in forming nuclei or building up those already formed. As the frames are taken out, the chaff cushions are returned, they having been stored in the hive all the while, and the wide frames of sections allowed to go right on out over them, as I gave in my former article. When this hive swarms, the brood, with enough adhering bees to care for it, is set in a new hive on another stand. Six frames of comb foundation, or empty frames, as I think best according to the time of year, together with dummies to take the place of three frames, are set in the brood-chamber, and the swarm allowed to return, or hived back in the same hive (when the queen's wing is not clipped), when the work in the sections goes right along without interruption on account of the swarming. I need not enlarge on this matter. All will see at a glance that colonies treated as here given will far surpass in numbers, *at just the time we want numbers*, those kept in an eight-frame hive, and restrict the "mouths to feed" after the harvest is past, and yet give us sufficient bees for winter. What we want is a rousing colony at *just the right time*, and I know of no plan that will give such, equal to the contraction plan as outlined above. G. M. DOOLITTLE.

Borodino, N. Y., Mar. 16.

[You and friend Dayton are bound, I see, to put me in a hole. Now, may be I had better keep still, and, as Dr. Mason says, pull the hole in after me. No, I won't keep still. Friend

Dayton uses a twelve-frame L. hive, while you use a nine to fifteen frame Gallup hive with or without a five-inch packed space on each side. My remarks were confined principally to the eight-frame L. hive. You see the circumstances were a little different. If all had hives, and managed contraction as do you and friend Dayton, there would be no disputing your grounds. But for some reason or other, the *tendency* of the times is rather against contraction. Here at the Home of the Honey-bees it forced pollen into the sections, and caused the bees to build out and fill the sections only over the contracted brood-nest. The sections projecting over the brood-nest were hardly touched. If I did very much contraction I think I should prefer to do it *a la* Heddon, on the sectional brood-chamber plan.

Dr. Miller used to be an advocate of contraction; but now he has rather gone back on it. Perhaps he will tell us why. Hutchinson, in the *Review*, says, "With an eight-frame hive I have seldom found it advisable to contract the brood-nest of an established colony."

Yes, Dayton did make some good points in favor of contraction, and you score some more good ones; after all, the more I read your article, the more I am inclined to believe that I do not disagree with you very much as *you manage*. If my printed statements do not agree, it is because I have not made myself clear.] E. R.

[Friend D., I am greatly obliged to you for the heavy testimony you have given us in regard to chaff packing over an empty air-space. Perhaps your air-spaces were not air-tight; but when I devised the chaff hive I made a number of experiments very much like those you mention, to show the value of chaff. As you state it, it looks quite reasonable that your method gives a larger force of bees; but I confess I should have been better satisfied had you mentioned that you tried several hives without this plan of contraction you speak of.] A. I. R.

STRONG COLONIES FOR GOOD RESULTS.

PUTTING TWO COLONIES TOGETHER IN SPRING.

However bee-keepers may differ on other subjects, I think all are agreed on this. Last season was a poor one; and although my colonies were fairly strong, I thought I would make sure of having at least part of them give good results, so I doubled up a number. It was a very simple matter to double then, for my hives stand in pairs, each pair standing close side by side, and it was easy to take one away and move the other a little, so as to stand in the middle of the place where the pair stood. The returning bees from each hive seemed very little troubled by the change. The hives had eight frames, and none of the frames were taken away, but a second story given, one queen being taken away. The question may be asked as to what I should gain so long as I did not increase the number of workers. Well, suppose each hive would give a surplus of 10 lbs., and the two united would give 20 lbs., there would be only one colony instead of two to handle. Besides, there ought to be fewer unfinished sections.

Now for the results. I can not say for certain, but, judging from what other colonies did, I think I didn't get as much honey from these doubled-up colonies as I should have done if they had been left separate. "Why?" I don't know. That's one trouble with my bees—they have so little consideration for either my theories or my feelings. I had counted on making quite a splurge on reporting the considerable gain by my scheme, and it is no little humiliation to own up a failure. But the bees don't seem to care. Nearly always, when I plan something smart, the bees spoil it all. But I don't always tell about it. I don't like to. I've too much consideration for the feelings of other people.

Altogether, I had some 300 two-story affairs, at least part of the season, although most of them had only three or four frames in the low-story. A division-board was put beside these frames, and the empty space filled up with hay. To prevent comb-building between the two stories, a thin board was put in some cases, but generally a piece of cloth of some kind, perhaps an old bee-quilt. This allows no communication between the two stories, except a strip of one or two inches, the width of the hive, at the front or back end.

If the queen was left in the upper story, I'm not sure that she ever went down to the lower story of her own accord; but if she was left in the lower story, she was pretty sure to go up.

REARING COLONIES UNDER THE REGULAR BROOD-NEST, ETC.

By means of this two-story business I made a discovery of some value. Put a cloth or a board between the upper and lower story, leaving free communication between the two at front or back, having the queen in the upper story, and you may rely quite surely on having the bees start queen-cells in the lower story. It is much the same as Doolittle's plan of having queen-cells above a queen-excluder. By the way, if I'm not mistaken, the first public mention of having queens raised in an upper story with a laying queen below was made by me in the columns of Gleanings, and I think Doolittle refers to it in his book.

At first I was much elated with the idea of letting a young queen be raised to supersede the old one. But in this I succeeded, I think, in only a single instance. The young queen, in all other cases, was duly hatched, but disappeared before laying. If I were allowed to guess, I should say she got along all right till, in her wanderings, she got upstairs, when the bees killed her. It might be worth while to see what would be the outcome if an excluder were used so that the young queen could not get above. In Doolittle's experience, when the old and the young queens got together it was the old one that was killed. No matter whether the young queen was raised in an upper or lower story, she was the one to be killed with me. What made the difference? Could the bad season have had any thing to do with it?

Let me tell you the use I made of the discovery. It proved, in the first place, that a young queen can be raised in a hive with a laying queen, without the use of a queen-excluder. Such queen seems to be raised by the bees on the same principle as superseding, and may be expected to be of the best quality. If I wanted to save the queen I took her away just before or just after hatching. If I wanted to start a nucleus, all I had to do was to take away the lower story, bees and all, and set it in a new place. Enough bees would adhere to it to take care of the brood; and that brood, hatching out, would make quite a colony by the time the young queen commenced to lay.

Of course, taking the brood away in this way deprived the colony of the young bees it would have had later. If I wanted these younger bees to be left with the old colony, or, rather, if I wanted to return to the old colony all the field-bees of the nucleus, after the young queen began to lay, my plan was a little different. Instead of taking the lower story to a new place, I set it on top of the supers on the old place. Of course, there was no communication with the hive below; and after the young queen began laying I then set the nucleus in a new place, and all its flying force would unite with the old colony.

Here's a plan that might work for those who want increase but prefer to have no swarming. Just before there is danger of swarming, make the hive two-story, putting only one frame of brood in the upper story, and the rest in the lower story with a cloth between, leaving the queen in the upper story. In about twelve days, set the lower story in a new location. This latter will be so reduced in bees by the removal that I think it will not swarm, and the old colony will be left in nearly the same condition as if it had cast a swarm. But that's only my guess in the matter, and the bees would have to be consulted about it before the plan could be trusted. C. C. MILLER.

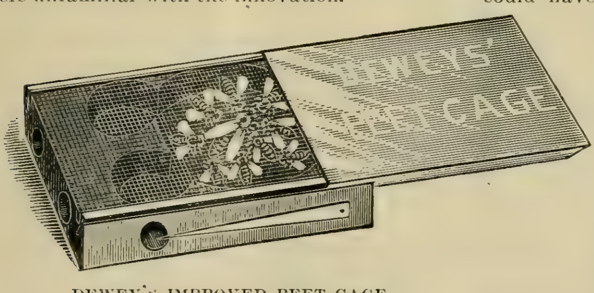
Marengo, Ill., Mar. 10.

[Friend M., we decided, about as you have, that uniting two colonies that are fairly started in spring, is, if any thing, a detriment in results. Of course, it is a good idea to unite two colonies so weak in numbers they would not pull through; but where they are fairly started, and have got things fixed to go right on when fruit-blossoms open, I do not believe it best to break up their arrangements, as we must do more or less to put two together. If one has more bees than he wants to care for, and no market for them, he might thus reduce his number of stocks, it is true.]

DEWEY'S PEET CAGE.

THE NEW SHIPPING AND INTRODUCING CAGE.

Mr. Root:—We hand you an electrotype for GLEANINGS, which you kindly offered to insert. If agreeable we would add a word to the readers unfamiliar with the innovation.



DEWEY'S IMPROVED PEET CAGE.

This is a standard Peet cage, save in having a wire-cloth slide beneath the tin slide, and three openings upon the edge into the candy. The original Peet cage is convenient in weight, shape, and size for the summer transport of queens. The objections upon different grounds made to it in GLEANINGS by Dr. Miller, Mr. Doolittle, and others, need not be repeated. It may be recalled how they demonstrated that time, combs, and queens, are too valuable to be devoted and sacrificed to the use of the Peet cage as originally devised.

The Peet idea of introduction, indeed, is obsolete; but the cage has advantages not inherent in the Benton, the Pratt, and other popular cages. There is the chief objection, that it has but one apartment. The new cage, as entitled above, has received this criticism, with the objection of extra cost; but it bears lightly these disparagements, trusting that time will show them both to be more or less immaterial.

The improved cage will drop between the combs, with very little spacing, into the midst of the bees, where its two gauze sides invite speedy acquaintanceship. What other cage has these two advantages—location in the cluster, and publicity of the queen? The time of liberation is dependent upon the number of passages uncorked to the outside bees. The Benton cage has but one opening, and is too thick to slide between the combs.

Will bees be shaken about more by transit in a shallow cage like the improved Peet, than in high-walled compartments of the other transmitters? There seems to be an answer upon theory. We will let experience give the verdict. Again, the bees are not in immediate contact with a chilling tin surface. Mr. P. H. Elwood suggests that wax applied to the inside of the slide in cold weather might tend to retain the warmth. This may be done, or a paper may be slipped between the tin and the gauze.

For those yet desirous of using an old and familiar method of introduction, the improved cage will be a Peet cage still by removing the gauze slide. On the other hand, when the tin slide is drawn away the queen may be introduced by almost any method now in vogue, and as soon, or as remotely as desired. All are free to use the cage. It has good points; do not sweepingly condemn it. The saving of queens in introduction will cover its extra cost, which is not large. The Falconer Manufacturing Co. are now making the cage. It will probably never come into universal use, but has a place to fill for a considerable class who desire at once a fair shipping and a reliable introducing cage. F. H. & E. H. DEWEY.

Westfield, Mass., Feb. 26.

[The cage as you have changed it is certainly improved; but it just occurs to us now, that, if you had gone just one step further, you could have improved it still more, and still have retained many of the features valuable in the original and new Peet cage; besides all this, it would cost less. Why have the tin slide at all? This, you remember, is one of the naughty features of the old Peet cage. The wood will shrink or swell so the slide will be either too loose or too tight. We would make the cage this way: The *wire-cloth* slide you have adopted is a good thing. Go a little further and make *two* wire-cloth slides, and groove both sides of the cages alike, and shove the wire-cloth slides, one on each side, into the grooves. Cover both sides with a light strip of wood ⅛ inch thick, and the size of the cage. These are to be held in place by nailing. The purchaser, on receiving his queen, simply pries off one of the wooden sides and then introduces by the candy or Peet method. If by the Peet method, he fastens the cage against the comb, in the regular way, and withdraws the wire cloth in place of the tin slide. Why, friend Dewey, you have given a suggestion that enables those who still like the old Peet method of introducing, and still do not like some of the disagreeable features of the Peet cage, to have just what they have been looking for, without most of the objections. Still, for all this we think the Benton cage is superior. *It is the one cage that has carried queens successfully by mail to Australia, back and forth to Europe, across continents, and to the islands of the sea.* One great reason for this is the three small compartments instead of the one large one.]
E. R.

WASH YE, MAKE YOU CLEAN.

THE NEW WATER CURE AT THE PRESENT TIME.

When I proposed sending our little pamphlets out by the thousand, as I did in our issue for March 1, I expected a flood of testimonials from a grateful people; but I confess I had no comprehension that we should get such astounding testimonials in regard to its power in curing disease and alleviating suffering as have been coming for the past few weeks. I have been saying to myself again and again, "This is a new thing, and it is fashionable. Everybody is talking about it, and we must make allowances for the effect of imagination." It is not very many years ago since people were buying electric medals, or buttons—yes, whole factories were engaged in making them. Even the hands in our establishment, in spite of all I could say, wore these senseless trinkets, and declared they felt stronger, had more vigor and energy, etc. I tried to remonstrate, and proved to them the device had no electricity about it at all—that electricity did not work in that way, etc. I finally gave it up in despair, and inwardly groaned in anguish to think that people of good sense should have faith in a silly trap that was just about on a par with nailing a horseshoe over your door for good luck. I do not know how long they stuck to their electric medals, but I think they are pretty much all gone now, and the electric belts and all such traps with them.

Now, the question that confronts us is, "What part of the wonderful cures that are told of in every mail, come from this same queer trait of humanity, and what comes from downright actual relief?" I am sure that a good deal comes from the latter; for it is as plain as an operation in surgery, or as plain as the remedying of a defect in a mechanical appliance; and along with the testimony comes a great string of facts in regard to relieving and saving the lives of *domestic animals* in the same way. For this purpose, any of the common fountain pumps to be found now in almost every household will answer an excellent purpose. One writer tells of finding a valuable ox just at the point of death, from a stoppage. He happened to know what could be done with water, so he borrowed a cheap pump of a neighbor, and the animal was relieved and on its feet in just a little while. I suppose that hundreds of valuable horses, cattle, and other stock are lost every little while just through ignorance of the simple means in the reach of every one to relieve them. You need not be afraid of using too much water.

As I expected, the question arises continually, "What shall be done with this large amount of water, to get it out of the way and avoid unpleasant smells and laborious carrying?" Very few bee-keepers' homes are provided with water-closet arrangements to dispose of this accumulation. The best arrangement I know of is one I have described before, which we have had in use for some years. The ground back of our outbuilding slopes downward for perhaps ten rods. Some years ago I dug a ditch, three or four feet deep and two or three feet wide, filling it within a foot of the top with stones, tinware, and any old rubbish I could pick up on the premises. Over the top I put flat stones, old tinware, sheet iron, and whatever else I could gather up; then it was covered with good rich soil. The covering was placed low enough so the plow would not disturb it. This is on the plan of father Cole's "new agriculture," as you may remember. The upper end of this covered ditch communicates with our out-building; but, please notice our whole ground is thoroughly underdrained, and the underdrains are just below this reservoir, so it can not stand full of water. Right over this covered ditch we have planted rhubarb, or pieplant; and it supplies our whole town with immense stalks of "pie timber" almost the year round. If anybody wishes to take exceptions to this way of raising garden-stuff, he is at liberty to do so; but I have never seen one who could tell a particle of difference between this product and that raised with an abundance of stable manure. In fact, there *is* no difference. Now, the above arrangement will dispose of just as much water as you feel inclined to use. The objection to Terry's plan of having heavy buckets of galvanized iron, is, that they soon become full, and heavy to carry away. One good friend suggests that Terry should modify his plans for an outbuilding, so as to accommodate the new water cure.

We have not space to mention a tenth part of the wonderful cures narrated; but I may speak of one or two. One friend was taken with a pain in the back while out in the woods chopping. He had great difficulty in getting home. The doctor was called, and he pronounced it rheumatism of the bowels. He did every thing he could for his patient, but it amounted to but very little. Other physicians and different medicines were used, but to no avail, and he and his friends began to think he would never be able to work any more. However, a thorough use of the new cure enabled him to get up and go to work in less than *three days*. His backache was the result of a stoppage that the water removed. It took nearly a month, however, to effect a permanent cure.

I must not fail to mention, that quite a number have testified to the effect that the new water cure has a wonderful effect in the modern disease called "grippe." Sudden acute attacks are driven away almost instantly by the use of hot water. One friend says that, by using daily, he entirely escaped a series of severe colds that affected the whole neighborhood around him.

Several have suggested having a short tube through the bottom of the pail, just large enough so the rubber tube will slip over it. Of course, there can be no objection to this plan, but it spoils the pail for other purposes, and I do not see that it is any more convenient. To facilitate using the water, I have a light tin pail, and the water is dipped from the hot-water reservoir that stands on our Stewart stove. This pail hangs on a hook right back of the stove. The rubber tube is on a little shelf (out of sight) right beside the aforesaid hook. This is simply dropped into the water, and a little bent wire near one end of the tube is slipped over the edge of the pail. As soon as the other end is dropped down the water begins to flow. The length of the rubber tube and the height of the pail determine the force of the jet of water.

DR. SALISBURY'S METHOD OF TREATING DISEASE, AND HIS USE OF HOT WATER.

Mr. Root:—In your article, "A New Method of Treating Disease Without Medicine," in Gleanings of March 1, there is a brief allusion to Dr. Salisbury's method, which is somewhat inaccurate. It is quite true, that the doctor has accomplished and is still accomplishing much for suffering humanity, but he doesn't *feed* his patients on hot water. In his system the hot water is used solely for flushing the stomach and intestines, cleansing the former from slimy, pasty growths, which interfere with good digestion, and the latter from feculent deposits. To feed his patients, the doctor prescribes beef—lean steak, free from fat and gristle, reduced to mince meat in a chopper, and then pressed into cakes or meat balls, and then broiled. According to Dr. Salisbury's theory, man is two-thirds carnivorous and one-third herbivorous; and his food should follow the same proportions. In some countries—India for example—the people, in the course of generations, have become herbivorous, and are able to live on a purely vegetable diet; but, few people can digest a purely vegetable or farinaceous diet in the United States. The doctor holds that most diseases are caused by a long course of eating improper foods which ferment in the stomach or bowels, and do not properly digest. His remedy is, first, to wash away offending and offensive matters by taking a pint or more of hot water at about a temperature of 110°, an hour before each meal, and the same interval before bedtime. Then he prescribes an exclusive meat diet, or as nearly exclusive as the patient can take it, forbidding sugary, starchy foods, and any thing prone to easy fermentation. Medicine is given, if necessary to help digestion. With good digestion the system begins to make good blood; and with a supply of good blood, all the organs of the body perform their functions well, and normal health is restored. This, of course, is not done in a day, for nature works slowly, and the result of a long course of wrong living can not be corrected by a short course of right living. In the case of serious diseases, like, for instance, consumption, it takes probably a year or two of treatment to get thoroughly well; but the improvement usually begins at once; and the end, if slow, is pretty certain.

The doctor's plan, you see, differs from the one you describe, in that it is more extensive—flushing the whole of the internal man, and not simply the colon, though the latter is good so far as it goes—and more natural.

It may interest some of your readers to know that Dr. Salisbury is an Ohio man, hailing, I believe, from Cleveland, though now living in New York, at 170 W. 59th St.

New York, March 7. E. CONNOLLY.

[My good friend, we are exceedingly glad to hear something which comes so near being direct from our old friend Dr. Salisbury. Perhaps I may remark, that I was at one time an enthusiastic patient of the doctor's—so much so, that, for eighteen weeks, I scarcely ate so much as a crumb of bread; therefore when anybody tells you that a man can not live on animal food alone you may know he is mistaken. At an early period of my life, for almost four years I ate only vegetable food. It were no more than fair, however, to say that I used plenty of milk and butter. I was at that time an ardent disciple of Fowler & Wells. In regard to animal or vegetable diet, my opinion is, that the great Father has given us a system so adapted to a variety of foods that nature can, without much effort, get along with either the one or the other; and I believe there are times, or special conditions of the system when either the one or the other almost exclusively may be a benefit; and I think one marked benefit I received in both cases was that I got so tired of my food that I was very certain not to overload the stomach; and I believe that almost every one who is ailing may receive benefit by eating sparingly. Find out, by careful experiment, just how much food is needed to enable you to get along comfortably, and then stop right square off when this limit is reached, always remembering that *too little* is far safer than *too much*. Hot water, taken in large quantities a full hour before meals, is many times an excellent thing. For myself, however, I greatly prefer it in the shape of hot lemonade. My good friend Dr. Salisbury, however, with most patients, would bid them omit the sugar part of the above beverage.

I beg pardon for my pleasantry in regard to feeding patients hot water; for if anybody knows that Dr. Salisbury chooses for his patients the most concentrated and hearty food there is to be found, *I* certainly ought to. Hot water of itself, without any other diet, would probably prove to be a rather "thin" food.]

INTERNAL BATHING—IS A CAUTION NEEDED?

Regarding your suggestions in regard to the use of water in cleansing the body internally, I should like to inquire whether, the use of water once adopted, it is not necessary to persist in it always thereafter. I have been told of cases in which defecation has not occurred for years without the use of water. H. M. WHEELOCK.

Fergus Falls, Minn., March 14.

[Friend W., two or three physicians have declared that there is danger in the way you indicate. I am inclined to think, however, that there can not be very much danger, for we have testimonies now from hundreds who have used it for from several months to several years; and I myself have used it daily for a week or two, and then stopped, and I did not experience any difficulty in the line you indicate.]

"THROW PHYSIC TO THE DOGS."

[I have several times felt that I should like to be able to cleanse the whole small intestines, in the same way we cleanse the colon. A good friend who has been for many years an invalid gives us a suggestion in this line in the communication below:]

In GLEANINGS for March 1st I notice a clear statement of the drugless remedy, and the benefits to be derived by its use. I have been a great sufferer from sick-headache, having it frequently, sometimes every week, and lasting three and four days, without intermission—one of the three or four days, often unfit for any business, or even to see a friend. My ailment was not like yours, Bro. Root—diarrhea, but the opposite—constipation—and of the most obstinate nature, so that pills and drugs of all kinds, thought to be helpful, were resorted to. I was also very careful as to the regimen of diet. These generally gave some temporary relief; but after a while, each in turn would, in a great measure, lose its power, until I had almost given up all hope of having any comfortable degree of health in this life.

When I heard of this "new method of treating disease without medicine" I gave it a thorough practical test. With me it did its work *well* just as you described, but did only *half* of the work. While the colon was cleansed, and apparently entirely relieved, the small intestines remained in their dormant and consequently diseased condition. I told our faithful family physician my difficulty, and it is for the sake of giving to any who have suffered as I have, the benefit of his reply that I now write this article.

Take a hearty drink of water, cold or warm (warm is best) on retiring at night. And as soon as you rise in the morning, use flaxseed (that which is not ground is best); pick all the straws or other refuse matter out of it, of course. Eat enough of it so that the bowels will have a free natural movement. It may take three tablespoonfuls—with others, much more, even to a pint a day. Be sure to take enough; it can not do any hurt. It will cleanse the stomach; and, as it passes the small intestines, will clear them; then, entering the colon, with the water treatment their united action will prove most effectual. The flaxseed leaves the whole system lubricated, so that the work of digestion goes on more perfectly—at least, this has been the result in my case. My bowels now move full and freely; and although I am 55 years of age, my general health is much improved. The headaches have almost entirely disappeared. As my ailment was of long standing, it is probable I shall have to keep up the use of flaxseed or the combined treatment for some time, or, perhaps, more or less through life. But if I shall receive as much benefit from them in the future as I have in the past, I can hardly say enough in their praise. L.

I have been using it for the past six weeks for what the doctor calls neuralgia of the bladder and bowels, and ulceration of the bowels. He gave me medicine to take internally, but I did not take it, as I wanted to test the hot water. I find I am perfectly free from pain, and am able to do my usual work. I used about three quarts every morning and night for the past month; since that the same quantity once a day. There are large numbers of people who have paid $4.00 for the cure, and they speak very highly of it; but they are bound not to divulge the secret, if it is a secret; but the public will owe you a debt that money can not pay.

Alvinston, Can., Mar. 14. James Orchard.

We notice in the *Canadian Bee Journal* of March 15, that the *Montreal Witness* has published the water-cure treatment exactly as given by Dr. Hall.

LADIES' DEPARTMENT.

BEE-KEEPING FOR WOMEN.

LIGHTER APPLIANCES FOR OUR LADY FRIENDS.

After reading the letter signed Emma Wilson, on page 80, I thought, why can we not have a corner to discuss gloves, aprons, etc.? There are lots of questions we women bee-keepers could ask of one another, while the men are discussing thick top-bars, closed ends, and dovetailed hives, with which they fill the paper, and I am not the least bit interested in, because the thing on my mind is section-cases for next season: what shall I get? One that will hold 24 sections, will with propolis and all complete, weigh 30 lbs.; this is too heavy for a woman to lift, especially when there are many and she is in a hurry. I have 32 hives, and have to do every thing around the bees myself; as they are so cross, none of the family will touch them. But if they are cross they are good workers. Last season they averaged 30 lbs. to the hive, while many others got nothing. Those "Blessed Bees" have been a success with me, for in the very poorest years I always get a little.

I have used the wide frames to hold sections, six of them holding 24 sections on the 8-frame Langstroth hive, but they are too heavy; so I took three of them and nailed on grooved strips and put in glass, or sometimes pieces of shingle or wood separators, and tied them together with cord. They are some trouble to fix, but when they are done they are very handy, as they are easy to lift and put on the hives, and they can be piled up two or three stories high, or turned around. I have thought if A. I. Root could see them he would say: "Oh dear! how very shiftless and untidy!" but I did it because it was easy to lift them. Mrs. W. Grubb.

Deansville, Deane Co., Wis., Mar. 2.

[Years ago we had what we called a Ladies' Department, but for some reason or other it was dropped. There is no reason why it could not be resumed *if* the sisters will be sure to write for it. Miss Wilson has already made a good start; and if the ladies will discuss some things all by themselves, we men will not stand in the way.

In regard to a suitable surplus arrangement, why wouldn't a dovetailed section-holder surplus case answer the purpose? Twenty-four pounds is too heavy to lift all at one time, you say. But, bless you, with the super as modified with a follower, you need not lift more than four sections at a time. Say, now, what is the use of lifting 24 lbs. so much, any way? If you don't want to bother with four sections at a time, just have a light, handy wheelbarrow close to the hive, and then sort o' tilt the case up on the barrow. You know you can handle a good many heavy things by simply getting the advantage of them in the right way, and still not be obliged to do any heavy lifting or straining. You remember years ago, Mrs. Jennie Culp used to produce some big crops of honey, and she used one of A. I. Root's handy wheelbarrows as her "best man" in the apiary. She made him (i. e., the wheelbarrow) do all the carrying, and managed the yard with profit and pleasure. "There, there, now," some of you will say, "just like all supply-dealers. They like to get in an advertisement of some of their implements in a foot-note." For conscience' sake! Can't we mention a good thing, even if we do sell it?] E. R. R.

GLOVES FOR BEE-KEEPERS.

RUBBER GLOVES, COTTON GLOVES, ETC.

Miss Emma Wilson wishes the experience of some of her bee-keeping sisters with regard to gloves in the bee-yard. In the beginning of our bee-keeping we tried rubber gloves, and promptly condemned them for reasons similar to those given by Mrs. Harrison.

Were it not that Miss Wilson expects to handle Italians instead of hybrids next summer, I should not think it worth while to bring to her notice the gloves we use, for they are by no means sting-proof. But with Italians the hands are in little danger, except such as proceeds from one's own carelessness. We use white cotton gloves, two or three buttoned, so that the wrists are protected, loose fitting, and with each finger cut off—and the edges stayed—just above the first finger-joint. To tell the truth, I find the unembarrassed use of my fingers so indispensible in handling frames and sections, that I dislike even this slight incumbrance, to which, nevertheless, I submit for the sake of some protection from propolis and a shade or two less of tan. The gloves are very cheap—fifteen or twenty cents per pair; and as they need frequent washing, half a dozen pair should be provided for a season. I wish Miss Wilson would try these with her gentle Italians next summer. I can assure her that they will prove more comfortable than buckskin, and, moreover, she will be able to place herself so completely *en rapport* with her bees that she need fear no stings except those that she may deserve. A pinched bee has a right to sting.

DO BEES DISTINGUISH COLORS IN A BEE-KEEPER'S CLOTHING?

I was interested in Miss Wilson's remark, that bees seldom if ever sting white. That bees have an eye for color, I learned in an interesting way a few summers since. On one side of the broad-brimmed hat I wore in the bee-yard, was a knot of cardinal ribbon; and I soon discovered that a certain colony of hybrids took it in high dudgeon if I approached too near. That ribbon was to them a red rag flaunted in their faces, and they rose up at once to resent the insult. Sometimes, when necessary to open the hive, I would make up my mind to quietly ignore them, for they never touched my hands nor tried to crawl beneath my veil. But to feel them hurling themselves like shot against the side of my hat, and to hear them siz-z-z-zing as they burrowed into that knot of ribbon, generally demoralized me to such an extent that I would close the hive and beat an ignominious retreat. I liked the bit of bright color on my hat, and was unwilling to part with it; so, in deference to their feelings, I pinned over it a piece of tissue paper. But a strong breeze would sometimes tear off the paper, or perchance release and expose only a corner of the ribbon, and at once the bees made me aware of the fact. So they conquered finally, and the objectionable color was removed. NELLY LINSWIK.

March 20.

[My good friend Nellie, you have given us some very valuable facts at a time when we wanted them, and I am glad of some suggestion in the way of something cheaper and better than rubber gloves. From what experience I have had, I believe that cheap cotton gloves, with the fingers cut off, as you suggest, will be the best and cheapest thing you can get. I have always felt sure that a good bee-keeper needs all the fingers God has given him, and he wants those so free and unobstructed that he may not only have all his fingers but all his wits at his fingers' ends. Your experience with that red ribbon seems to settle the matter; and now comes a question for our scientific friends: Why do bees object to red? It has been said, that our domestic animals recognize it as the color of blood; and the sight of blood infuriates not only animal kind, but even man in his savage state. We are told that the American Indians, at the sight of blood, often become raving maniacs, especially when their worst passions are stirred up by some quarrel among the tribes. But our little friends the bees have no red blood in their bodies. Why, then, should those colors arouse their ire and prompt them to sting? Will Prof. Cook come to our help?]

WOMAN'S DRESS IN THE APIARY.

BEE-VEILS, GLOVES, ETC.

This is to me an interesting subject, because I am always looking for improvements. But I have not been led to make much change in the dress I stumbled on when I began working among the bees. In making preparations I read all that my small stock (at that time) of bee-literature contained on the subject. My experience may help others.

From the A B C I got Mrs. Harrison's idea of a hat; but I have discarded that, except the cape, because I found that a straw hat, with not too wide a brim, is a better protection from the sun. I want the hat as light as possible, and not to press on or cover my forehead, and to have an air-space at the top. I like the cape to tie under the arms, and I generally fasten the hat on my head with a long hat-pin, or an elastic, because sometimes it will get disarranged just when I can not put my hands up to fix it. That was one objection to Mrs. Harrison's hat —it would slip about on the head.

For the dress, I wanted something to fasten at the neck over the cape. I had in the closet a linen duster, close-fitting, plainly gored, double-breasted, with two coat-like pockets. I put i on over the cape of my hat, and belted it at the waist. It covered my dress entirely; it was neat and tight, and the pockets were ever so handy. As it is linen the bees do not object to it, and it is light and cool. I have found it so exactly the thing, I have never changed; but when it was worn out I bought another, and last spring I went to every large drygoods house in Chicago for another, but they are no longer in stock. They use mohair now, and I was obliged to get the linen and make one. I have paid $2.00 for the ready-made garments, but this cost a little less.

For my hands, I have gloves, with gauntlets to fasten over the sleeves with elastics, sometimes; if very warm, only linen mittens made of the same material as my coat; and it is rare that I get a sting through them; but I want something on to keep my hands clean, and to prevent tanning. Some of my gloves have the ends of the fingers off. I use these when I want to work fast. I do not mind stings if they are not on my face.

When taking off honey I usually put on an apron to keep my dress clean; and, in fact, lately, more often I tie an apron around my waist instead of a belt. It answers the same purpose —to keep the bees from crawling up to my head; and, as I am so often on my knees when at work, it gets the grass-stains and dirt, and can be easily washed. Miss Wilson's apron is just the thing, because it is so snug. You do not want any thing that will blow about, and catch on hives and bushes.

As far as dress is concerned, I do not think a woman need to get any more stings than a man. In my armor I am almost sting-proof. It is an exception to have one on my body. I know I do not get the most stings in this apiary, unless I am the only one at work. S. M. STOW.

South Evanston, Ill., March 20.

SOME VALUABLE SUGGESTIONS IN REGARD TO WORKING AMONG BEES DURING VERY HOT WEATHER.

ALSO SOMETHING ABOUT REFRESHMENTS FOR THE BEE-KEEPER.

I see in GLEANINGS, March 15, that ladies are to have a department. I like a mixed session, as a general thing; but there are some subjects that we can profitably talk over among ourselves, that gentlemen have little or no special interest in. As bee-keepers, we need different clothing and far lighter implements. I'm not young, and far from strong; yet I can accomplish considerable by taking care of myself. I have to be careful and not get overheated; and I can not carry much weight in clothing, either. Our hives are so situated, that, during some time of day, they can be opened in the shade; but hiving swarms has to be done in the sun, many times with the thermometer one hundred in the shade. What clothing is best for me to wear may not be best or proper for another. I keep my clothing, that I wear to work in the apiary, in the honey-house, and go out there and remove my outside clothing, and hang it up, to put on again when I am through. During June, July, and August, in this locality I could not endure a ticking apron. My underclothing is the American costume, and is high in the neck, reaching from my ankles to my wrists; and if I have to hive bees when it is one hundred in the shade, I put on over this one skirt, a wet head cap, and then tie on my bee-hat, and put on a linen sacque, which keeps all bees from getting under the cape of the hat, and gloves with gauntlets. As soon as I am through with active work in the sun I wash, and change to warmer clothing, to keep from chilling.

I always have an umbrella at hand, attached to a staff, such as artists use, so I can stick it in the ground, to shade me when at work. When I hear, "Bees are swarming!" the first thing I get is the umbrella, to raise and shelter me while I am watching to see where they are going to cluster. With the staff resting upon the ground, it makes it easier to hold.

Heat may not affect all heads as it does mine; yet comfort and health should be considered before looks. If I worked at out-apiaries I should have to wear much warmer clothing, going and returning, than I could endure while at work.

It refreshes me very much, when I am hot, to eat a pint bowl of ice with a tablespoon, or a lemon cut up with the ice, and sugar. If I should drink a glass of ice-cold water it would make me sick; but the ice never does, melting slowly. MRS. L. HARRISON.

Peoria, Ill., Mar. 21.

[Now, dear friend, we are quite willing to submit, or, perhaps, to stay in some other department, when you are talking about clothing for women in the apiary; but when you wind up by talking about a pint bowl of ice, with lemons and sugar, to eat with a *spoon*, we want to be around with the sisters. Why, my good friend, you hit right squarely on my favorite beverage and luxury in the summer time. We have a great big ice-house of our own, chock full of ice from the carp-pond. Then we got a little machine, for about four or five dollars, that turns with a crank. Put in a piece of ice and set your pint bowl under the hopper; turn the crank and the ice is broken up in pieces about the size of peas. With a lemon-squeezer, put in lemon-juice and sugar to taste, then sit down in some quiet place to eat it with a spoon, just as you would mush and milk. I got the idea years ago from some of the health journals, that one could eat pounded ice where he could not stand a glass of ice water, and it has been worth ever so much to me. But to enjoy it, and have it do me real good, I want to take it slowly. And now here is a suggestion for poor unfortunates who at some time in their lives have been intemperate. I used to enjoy greatly (at least I thought I did) a glass of beer from a pitcher with a lump of ice in it; and a great many times old memories will come back and tantalize me; but after I have had my bowl of "lemon ice," as I call it, I would not give a fig for all the beer in the world. Now, if there are any among our readers who have found it hard work to give up the beer, let them try our plan. Mrs. H. and I do not propose to monopolize the idea, by any means. A good many times lemons and sugar are cheaper than high-priced fruit; and my opinion is, that they answer the purpose just about as well.]

RUBBER GLOVES.

NOT SUITED FOR BEE-WORK; MISS WILSON DISCUSSES CONVENIENCES FOR LADIES.

I have had so many good letters, and so much valuable information, in regard to gloves since my article on that subject, that I feel as if I should like to give at least a part of it to the readers of GLEANINGS. One and all agree that they want nothing to do with rubber gloves. Mr. Thomas, of Nebraska, gives five such good reasons for not using them that I will copy them.

1. They are not handy about getting on.

2. No matter how dry one's hands may be ordinarily, the perspiration will condense inside them, and the hands will be all the time wet.

3. They will almost always turn inside out in taking them off. In case they fail to turn, you must turn them to allow them to dry, and then they must be turned back again to wear.

4. They are tolerably expensive, and do not last long unless perfectly cared for.

5. (and biggest). The combined smell of rubber and perspiration, after the gloves have been used awhile, will leave one of the most horrible combinations in the shape of an odor clinging to one's hands that he ever experienced.

For two years Mr. Thomas has used a glove called sealskin. They are smooth and shiny on the outside, like kid, but somewhat heavier, white and pliable. He has never been stung through them. After some little difficulty I have succeeded in getting a pair, and mean to try them this summer.

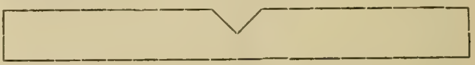
Mr. Coldwell, of Nebraska, has used dogskin, which he likes very much. Mr. R. McKnight, after experimenting a good deal, has decided to use kid. He also says that a cotton duck grain-bag, costing about 25 cents, makes a very good apron; and although a man, like a very sensible one he wears such an apron himself.

Mrs. Shreve, of Ohio, has used calfskin gloves, and likes them.

Although there is such a strong feeling against using gloves, it seems a good many can not get along without them.

As often said, it is the little things that make our work hard or easy. Having every thing convenient for our work is half the battle. Tools convenient, a good supply of smoker fuel in a handy place, etc., all make a big difference in our day's work. Every step saved is a help. I don't know of any one thing that is as great a comfort in the apiary as a good seat, light and strong—one that is easy to catch up when you are in a hurry. Use it whenever it's possible. That is my trouble—so many times I think I am in too big a hurry to stop to sit down, when I have no doubt I could save time by doing so. But I might as well confess I would not do it if Dr. Miller did not insist; and I am ashamed to say I sometimes feel fretted because he does insist, when I ought to know at the time that it is best. Although you may gain a few minutes at the time, not to stop to sit down, you become so tired that you will not accomplish as much in the course of the day.

Whenever we have any special work that will take some time to do, Dr. Miller will spend considerable time in planning how to make that work easier. For instance, if we are making shipping-cases he has a form to hold the pieces securely in place while we nail them; another form for making supers, etc. In glassing shipping-cases, unless you are very careful you will crack the glass. You want to drive the nail in just as deep as possible without breaking the glass; and it is a difficult matter to tell when that point is reached. Dr. Miller obviated the difficulty for me in a very simple manner. He took a piece of section, a little thicker than the glass, cut it the width of the glass, with a little notch where I wanted to drive the nail, something like this:



By pressing this against the glass I could drive my nail without fear, knowing that the hammer would strike the wood before the head of the nail could reach the glass. You don't know how much faster I could work by means of this simple arrangement. EMMA WILSON.

Marengo, Ill., Mar. 7.

[We are glad to get this testimony against rubber gloves; and it has been agreed so uniformly, that they are not suited for bee-work. There has been a protest in our catalogue all along, but still a good many customers buy them. Something cheap would be better; for when they get too badly worn or soiled they can be thrown away.

I always use a seat while working among the bees; but I don't want any thing to lug around all day, so I sit on the hive-covers, and I don't want any thing better. I will shortly illustrate how I manage.] E. R. R.

BEE-KEEPING AND HOUSEWORK.

SUNDRY ITEMS FROM MRS. AXTELL.

Women who make bee-keeping a business, as well as others, should learn how to make their housework light and easy. No work is more laborious than our washing. I have tried many ways of doing mine, and I find that a good washing-machine that covers up and keeps the suds hot is a great help; also borax dissolved in the water, a piece as large as a hickorynut, for a small washing, or a piece twice or three times as large for a large washing, with plenty of soap, will loosen the dirt and cause the clothes to be white and clean, and not injure the fabric. It causes flannels to be soft and clean. I buy borax by the pound, and use it in preference to any kind of washing-fluid or patent soaps.

SHORT VS. ABUNDANT STORES.

The talk about short winter stores being a saving seems very nice to the bee-keeper; but the bees are like a man with a pocketful of money—he is in better condition to take advantage of the times, and make more money, than one living from hand to mouth; and just so I think it is with the bees—they make us more money with their pockets filled; or, in other words, with plenty of honey at all times, when not able to gather it from the flowers. An old and experienced bee-keeper might be able to make more from his bees by keeping them with short stores at certain times of the year if he has plenty of time to be tinkering with them; but beginners would let them starve. They would be more likely to waste a pound to save a penny; and also those who have much other work to do had better not try to see how short of honey they can run their bees, or they will forget and run them overboard.

OUT-APIARIES.

Considerable has been written upon out-apiaries. The first object sought should be a good location, which generally is best near swampy or pasture lands; yet in this vicinity, where the most of the land is worked and planted to corn and oats, we often have rich fall crops of smartweed that comes up after the oats are harvested, and in thin places in the corn. The next object should be to plant the apiary in a permanent location where the man owns the property, and is not likely to move away; also, that the people are obliging, and likely to be patient with the bees. It is extremely unpleasant if the people are afraid of them, and all the time complaining of them.

SHADE, AND WHAT MRS. AXTELL RECOMMENDS.

I would not be so very much influenced by the matter of shade, as to where to plant my bees, if all things else were satisfactory; but I would secure it at once; and immediately, whether fall or spring, plant out quite thickly some fast-growing trees, such as soft or ash-leaved maples—some call them box-elders. I would not plant fruit-trees, even in a home apiary, as they are almost sure to be barked and killed, and are of too slow growth. I should plant the trees twice as thick as I wished them to be when grown. One will be surprised to see how much shade they will make, even the first season, if they are planted carefully, and, if dry weather sets in, are mulched. The large Russian sunflower will make a nice shade for the first season, if planted so as to throw its shade directly upon the apiary in the heat of the day. The only objection to it would be the large quantities of propolis it secretes. It is visited by the bees more for its propolis than honey, I think, and more by the common small wild bee than the honey-bee. One of our neighbors had his apiary thus shaded, and, when in bloom, it was quite picturesque. If the apiarist has any doubts of being able to secure a permanent place for the apiary, he should not build a house, but use empty hives to hold what articles need to be covered; or I would build a small house that could be easily moved by placing it upon a sled in winter time.

HOW TO MAKE THE WORK EASY FOR WOMEN.

But it is a great convenience, if a permanent location can be secured, to have two houses—one a small plastered one, with a window, a bee-escape, and a tight door, to keep all the honey and combs in, and another that a small stove can be set up in, where the apiarist can warm his coffee and dinner, and rest in cool days. It need be but a small room with only a pane of glass in the door, with no furniture but the stove and what can be made of the bee-fixtures; and yet it adds greatly to one's comfort. Such a room we have. When we go to our out-apiary to work we do not try to rush through the work so hard that our help will never want to go again, but we take along our reading, and rest awhile at dinner time, and either read or chat, and generally try to have a good dinner, so that our help often say they would rather go to the out-apiary to work than to work at home. Indeed, nearly all our girls (and I do myself) look forward to a trip to the out-apiary as a sort of picnic; then we try to get home so early in the evening as to be not too much fatigued for the next day's work. In the course of time we accomplish *more work* by not crowding our help or ourselves too much. If we push bee-work too hard, and the help gets vexed by the stings, it makes it more difficult to hire help to work with the bees; but if they have it rather easy, and a good time with the work, but still have the stings to endure, they will be more likely to excuse the stings, either in working with the bees at home or at out-apiaries.

HAMMOCKS, HITCHING-POSTS, ETC.

A hammock, too, is a great comfort to the apiarist, or, what I like better, a small bench with a raised head-board, that I can carry to any part of the apiary. A hammock swings too easily—one can not rise quickly from it to catch queens in swarming time; and in an out-apiary it tempts children to come there for a swing.

Last, but not least, should a good strong feed and hitching post be put up for the horses, under the shade of a tree if possible. If a feed-trough is just in front of the hitching-post they stand much more contented, and I know of nothing more annoying in connection with out-apiaries than to have the horses uneasy, and sometimes break away, and oblige one to leave the apiary with half a dozen or more bees following, to run to catch the horses. As Miss Wilson says, "It is the little things that help to make our work hard or easy."

Mrs. L. C. Axtell.

[I heartily indorse what you say in regard to these little conveniences in the apiary; and they make all the difference between hard and pleasant work. In regard to hitching-posts, I suspect that, if I had had a good one at our basswood yard, I should have saved the life of a valuable horse. But you remember that, contrary to what I knew was best, we were in the habit of hitching our horse to a young sapling; and you remember how he broke the thill and pushed the jagged end of it into his heart. For colts, at least, I would have a couple of posts and a cross-rail, so they can not catch the thill around the post and snap it in two. A feed-trough would be a good thing, and would help no little toward keeping horses quiet. I know how unpleasant it is to be working at an out-yard, and to be obliged to look every few minutes to see whether the horses are all right. And while we are talking about hitching-posts, I should prefer the side of a barn, with a ring in it about five or six feet from the ground. Not even a colt then can get its foot tangled or get into any trouble. I believe I would always hitch with a strong neck-strap, passing the strap through one of the rings of the bit. If a stray bee should happen to sting him then, there is much less danger that he will snap the strap or get into mischief. At our Shane yard we put our horse into a stable near at hand, after having taken him out of the thills. I tell you, it is no little comfort to know that a horse is safely stabled, and away from flies and bees, when working at an out-yard; and as this department is especially for ladies, it behooves the men to see that there are good hitching accommodations, and that all parts of the harness are secure. Never drive to an out-yard with a pair of poor thills. Whenever driving within the vicinity of bees, or drawing loads of honey, bees are inclined to follow, and, at best, accidents are liable to happen; so it behooves us to have every thing in good shape.] E. R.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 181. 1. *In cellar wintering, how much ventilation do the hives need, and how would you secure it?* 2. *How much does the cellar need, and how would you secure it?*

I don't know. We winter all out of doors.
Wisconsin. S. W. E. France.

I would not bother with any ventilation at all. Keep your temperature up to 45° or 50°, and never mind the ventilation.
Michigan. S. W. James Heddon.

Raise the hives from the bottom-board two or more inches, paying no attention to the ventilation of the cellar, providing you can keep the temperature at from 42° to 45°.
New York. C. G. M. Doolittle.

No ventilation at the top, but all you can readily secure at the bottom. Usually, leaving the entrance wide open does very well; but to have the whole bottom off would be better.
Illinois. N. C. J. A. Green.

I ought to have more experience before answering. I should say, perch the whole hive up on two pieces of scantling. Where this is done I do not think the cellar needs any special ventilation.
Ohio. N. W. E. E. Hasty.

My best wintering was in a cellar in old box hives, inverted, standing entirely open, a hole four inches square at bottom of cellar, and the same at the top of the opposite side. These holes were covered so as to prevent strong winds from blowing in.
California. S. R. Wilkin.

1. Raise one inch from the bottom-board, with an inch block under each corner. I use loose bottom-boards. 2. Three-eighths-inch ventilators running through the roof, and one sub-earth, same size.
Wisconsin. S. W. S. I. Freeborn.

We remove the entrance-block, and sometimes the whole bottom-board. We also remove the cap and a corner of the quilt. We ventilate the cellar only by opening the windows occasionally.
Illinois. N. W. Dadant & Son.

There is no use in being too scientific in such matters. The exact amount of ventilation for hive or cellar would be only conjecture. Let the air in your repositories of bees be comfortable for yourself, and then you will be all right.
Ohio. S. W. C. F. Muth.

1. If the bottom-board is left on, leave the entrance open full width for ventilation. I winter with bottom-boards removed. 2. Enough to keep the air fairly pure. If I could I would secure it by means of a stove set in the cellar, the draft of which would be ventilation enough.
Ohio. N. W. A. B. Mason.

Leave the fly-entrance open. The cellar needs enough to keep the air pure, and we secure it with a sub-earth ventilator. Before this was put in, comb honey would become watery and burst the cells; but now it does not, and the air is as pure as in any room in the house.
Illinois. N. W. C. Mrs. L. Harrison.

1. I would remove the board cover, spread a piece of cloth (ducking) over the frames and cover with a cushion 3 or 4 inches thick, stuffed with fine hay or chaff, or dry planer-shavings, and give a very small entrance. 2. For a cellar 20x30x7, I would use a 5-inch ventilator connected with the kitchen or some other stovepipe.
Vermont. N. W. A. E. Manum.

I think the usual summer opening enough. If the hives are so made that they could be raised an inch or two from the bottom-board I should like it; then dead bees will not shut off the ventilation. I doubt whether it is necessary to ventilate the cellar. I do think it very important to keep the temperature of the cellar uniform, from 38° to 45° F.
Michigan. C. A. J. Cook.

1. That depends largely upon the cellar—its temperature, moisture, etc. We usually give 20 square inches or more at the bottom, as that in our hives is the most convenient point to ventilate. 2. With a small number of colonies, the natural ventilation in most cellars will be sufficient. By natural ventilation I mean that passing through the walls, crevices, etc. With a larger number of colonies, more ventilation must be given. For more particular information on this point I shall have to refer you to articles I have written on that subject.
New York. C. P. H. Elwood.

Give the hives abundant ventilation at the bottom. I secure it by placing the first row of hives on stringers, with the hives 6 inches apart; or, instead of the stringers, lay down hive-covers 6 inches apart, placing each hive over the space thus left. This gives a similar space between the hives, over which place the next tier of hives, and so on as high as you choose to pile them. This is for open-bottom hives. I should be at a loss to know how to secure the needed ventilation in a fixed-bottom hive. The cellar needs but little ventilation—very little, so long as the proper temperature can be maintained.

Ohio. N. W. H. R. Boardman.

I use the same rim mentioned in answer 180—500 cubic inches of air space, but with generous ventilators upon the sides, covered with wire cloth; a slot on each side 1x12 inches; the entrance is left open full size. I do not pay so much attention to cellar ventilation as formerly. I think the ordinary cellar will have plenty of means for the entrance of pure air. I believe a rapid change of air is detrimental to the bees. My rule is to test the air once a week with my nose. If sweet and healthful, the ventilation will take care of itself.

New York. E. Rambler.

1. None above, but all you can conveniently give below. For the sake of the bees, I'd like to have the bottom entirely open; but for my own convenience I like a deep bottom-board, leaving two inches of space under the bees, and the front entirely open. On one account this is better for the bees, for then they can be piled straight up, and jarring of one pile will not affect others. 2. More than some think it does. It needs enough so that it will seem fresh and sweet every time you go into it. In a windy time it needs no attention; but when still, if warm enough I'd open doors and windows. A sub-ventilator helps, and a pipe opening into a chimney is about absolutely necessary. A low fire in a stove when weather is not too warm, gets up ventilation.

Illinois. N. C. C. Miller.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WAX QUESTION REVIVED AGAIN; HOW MANY POUNDS OF HONEY TO ONE POUND OF WAX?

Seeing so much in the bee-journals about how much honey it takes to make a pound of comb, I can not overlook all these articles without saying something relative to my experience. I rather cling to the old tradition of 20 pounds of honey to make one of comb. Now for my reasons: In the summer of 1878 I found an after-swarm of bees on a limb of a small tree. It was the 8th of July when I got them. I put them in a raisin-box which I found. As I knew nothing about bees, I thought it would do all right. This raisin-box was 14 inches long, 10 wide, 8 deep. Now, you see this was a small hive. I did nothing more with them till September, when a friend of mine, who understood bees, came to see me. He took the box up and looked at them closely. He said they would need feeding. The box was about a third full of comb, but not much honey, so I began feeding sugar. I fed $5 worth of sugar, or 50 lbs. The water that was added to this would make it over 60 lbs. Now comes the test. When I began this feeding, the honey season was all over. The hive was only a third full of comb, very little honey in it. Now, when I got through feeding this amount, the hive was filled with comb to the bottom; and when I carried them into winter quarters the hive, bees, syrup and all, weighed 20 lbs. Now, I should like to know what became of all this syrup if they did not use a lot of it for comb-building. Suppose the bees used 25 lbs. of this syrup for brood-rearing, and 15 lbs. for winter stores. You see how much would be left. I have been keeping bees ever since I got this hive, and I have had good success. Some years I have had tons of honey.

Birr, Ont., Jan. 26. Wm. Coleman.

[Your raisin-box, if we figure rightly, would contain about 2 pounds of comb; hence the bees must have built, after feeding, 1⅓ lbs. If there were 15 lbs. of stores, and the bees consumed 25 in brood-rearing (they probably did not consume so much), there would be 20 lbs. left for comb-building, or 15 lbs. of honey to a pound of wax. As the bees probably did not consume so much in brood-rearing, the proportion in this case would come pretty near that of the "venerable falsehood," as it has been called; but it should be said, that there are many more reports of experiments in this line that make the proportion all the way from 1 to 3, to 1 to 15. The general average has been perhaps one of wax to ten of honey. It has been shown that pollen makes considerable difference in results. You do not say so, but we judge that at the time you fed your bees they were not gathering much pollen, though it is evident they must have had some for brood-rearing. If you were to repeat the experiment at a time of year when there is an abundance of pollen, using honey instead of sugar syrup, you might see a difference in results.]

THE PER CENT OF WAX OBTAINED BY A SOLAR WAX-EXTRACTOR.

I made a solar wax-extractor last summer, and extracted all my wax nicely; but toward the end of the summer I discovered that only about 60 or 70 per cent was extracted. I boiled a lot (half a market-basketful) of refuse, and it yielded almost a pound of second-grade wax; but I had to squeeze it by hand through a cloth, and then boil it in water to collect it and wash it. Honey is up high now, 15 and 25 cts.

Mr. Doolittle measured to get the distance between combs in some box hives he had; but he says that he measured the marks where the comb was built on to the top-board, and found the distance was $\frac{5}{16}$ inch between the combs. I bought some comb in old-fashioned box hives from a neighbor last summer, and measured on the top-board and *in the brood-nest*, and I found that the distance varied from ¼ to ½ inch all over. They do not always build straight unless the one next to it is straight.

Geo. E. Fradenburg.

Kansas City, Mo., Jan. 18.

[Your observation agrees with ours.]

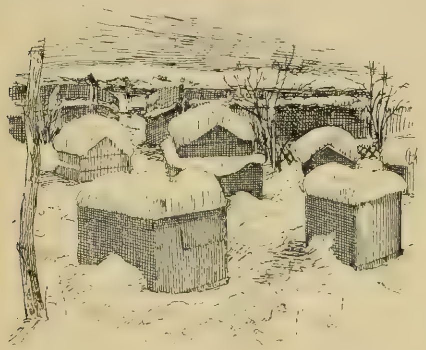
ESPARCETTE; ANOTHER PROMISING HONEY-PLANT.

I wish to call the attention of all bee-keepers to what I believe is destined to be the most valuable honey-plant known in the irrigated district. It is the forage-plant called esparcette, or sanfoin, and described in the catalogue of F. Barteldes & Co., Lawrence, Kan., page 76, as belonging to the same family as alfalfa, and well adapted to light chalky soils, sands, gravels, and barren regions, where rainfall is not plentiful and irrigation is not obtainable. It is a perennial, with hard woody roots; but I am told by those who are acquainted with it, that it can be plowed under. And now for its honey virtues. A small piece is under cultivation at the Government experimental farm near my apiary (about three-fourths of a mile); and while in bloom it was more thickly covered with bees than any other blossoms I have ever seen. This was at a time when they could get nectar from other blossoms, such as apples, a little white clover, etc. As it is mentioned in Gleanings as a valuable honey-plant in England, and grown there for hay, I think it would be valuable in the Eastern States, especially on lands where other grasses do not succeed. Mr. S. Simmins, of England, mentions the plant in Gleanings, Vol. X., page 499. It would take up too much space here to mention all the good things said about this plant. I hope to hear from others in regard to its adaptability to heavy soils under irrigation. J. B. Colton.

Garden City, Kan., March 5.

RAMBLER'S OUTSIDE WINTER CASES; YELLOW OIL CLOTH INSTEAD OF WOOD FOR OUTSIDE CASES.

Herewith find photo of the hive winter cases I described to you.



In November I prepared two Heddon hives, each hive with two cases and a three-inch rim under the cases. I then covered all with several thicknesses of newspapers, and put over them a hood of yellow oil cloth. This oil cloth is of the same material that oil-cloth coats are made from, and is called "fish brand," as it is prepared with some kind of fish-oil. Coats made from this material will turn water much better than an ordinary rubber coat, and do not crack in cold weather. These two colonies are in splendid condition, though the weather has been quite severe. I give them the entire entrance. This oil cloth can be prepared by the bee-keeper by getting the fish-oil from the manufacturers. I think this is not a new idea, for it has been in use in some apiaries for some time, only upon a different packing. The cost of the oil-cloth case, as I purchased it all prepared, is about 25 to 30 cts., or 20 cts. if made by the bee-keeper. Rambler.

[Won't those oil-cloth cases or sacks, after several seasons, get rotten and torn? They are cheap, I know.] E. R.

PAINTED CLOTH INSTEAD OF TIN FOR HIVES.

Friend Root:—You inquire in Gleanings, "Who has had lots of experience in cotton roofs for hives?" My experience is somewhat limited, as I purchase my hives and use the covers as manufactured; but I have one chaff hive, made as per A B C, on which, having no new cloth handy, I used an old piece of black calico painted with two coats of white paint. It has stood out six years; and although the paint is all worn off it has never leaked a drop, and the bees have occupied it the whole time, it being the only colony I have not been obliged to feed to keep alive. My experience justifies the assertion that I would rather have cotton cloth *painted* than either tin or wood. It is lighter and warmer than tin, and never shrinks or swells, like wood. In Florida, the second floor of two-story verandas are frequently covered with 8 or 10 oz. duck, and painted, giving much better satisfaction than wood, as it keeps water out of the joints, prevents decay, and wears longer than flooring if kept painted.

Pecatonica, Ill., Jan. 20. G. D. Rodgers.

[Thanks. These are just the facts we are after. Whom shall we hear from next?]

A GLIMPSE FROM FLORIDA; HONEY AND ORANGES FROM THE SAME TREE AT THE SAME TIME.

Mr. Root:—Can you gather two crops off the same tree at the same time? We are doing it to-day. While we gathered the oranges, the bees were much more busy gathering the honey from the flowers. Two friends, one from Minnesota, the other from New Hampshire, helped us, just for the fun of it; and didn't they eat oranges! The trees are quite full of bloom, and the bees are just booming. They were so intent in getting the sweets that they let us knock them around pretty roughly. Prospects for a big crop are good. This time last year our bees were starving, but now they have lots of full honey, and are storing now more honey than I ever knew so early in the year.

W. J. Drumwright.

Sarasota, Fla., March 3.

CASSAVA—A NEW SOURCE OF HONEY.

send you a specimen of cassava honey. As you are aware, cassava is grown as far north as middle Mississippi for the root, which is an excellent food for man and beast, which latter includes hogs, cows, sheep, chickens, etc. From it is made an excellent starch, and tapioca is also a product. I had quite a patch, and my bees boomed on it almost like buckwheat. It is in bloom from September till frost, or Jan. 1, at least. I have never seen it mentioned as a honey-plant, and I think there can be no mistake as to the source from which it was obtained.

Irving Keck.

Bowling Green, Fla., March 14.

[Friend K., I believe you have the credit of being the first one to mention honey from the cassava, and we have no doubt that you are right about it. If we can find plants that produce a regular article of commerce, like tapioca, we shall be getting ahead some. Will other readers of Gleanings who live where this plant is in cultivation, please give us their experience? Perhaps we had better commence using tapioca more largely, that there may be a greater acreage of the plant grown. The sample of honey is very fair, though a little off in color, and having a faint taste that would suggest honey from the vicinity of the tropics. Altogether, however, I think it would compare favorably with honey from palmetto and other similar sources.]

BOARDMAN'S SOLAR WAX-EXTRACTOR; A CORRECTION.

In regard to the solar wax-extractor and honey-evaporator, described in Gleanings of Jan. 15, make as many as you please. I do not propose to go into the supply-business, and shall at most make but a few of the extractors, in an experimental way.

I noticed in the description two rather misleading errors. On page 50, second column, 6th line from the top, the description reads, "The lower end of the extractor is covered." It should read, "*cornered*." The corner is taken off. Again, near the end of the description it reads, "painted a drab color." It should read, "*a dark color*." H. R. Boardman.

East Townsend, O., Feb. 2.

HOW TO GET RID OF A FERTILE WORKER; AN EASY WAY.

I for one like to have GLEANINGS sent after the time paid for expires. I noticed in GLEANINGS for Dec. 15, one writer (C. C. Miller, I think) tells how to get rid of fertile workers. I read of a way in the *Api.*, I think, which I tried last summer. No doubt you "old fellows" know *all* about it, but it is an easy way for a beginner. Set the hive with the fertile worker on top of one of the strongest colonies you have. My strong colony had a case of sections on, which I took off and put on top of the now two-story hive. I left them there about four weeks. I had a good deal of trouble in handling this double colony, not because the bees were cross, but because there were so many of them. They just *boiled* over whenever the hive was opened. When I separated them the queen was with the top hive. The lower hive started 14 queen-cells. I cut out all but two, and in a few days one of these, and I soon had a laying queen. Both colonies were in good condition for wintering with a little surplus. JOSEPH F. BARTON.

Chicago, Jan. 1.

CLOSED-END FRAMES HANGING FROM THE CENTER.

I use a closed-end frame that hangs from the center, on tin rabbets on the ends of the hive. This frame is cheap to make, and I think it is perhaps easier to handle than some. It is really a hanging frame, and is also a very simple reversible one as it rests (or hangs) from the center. Hanging, as it does, from the center, on tin rabbets, out of the way of the bees, they do not stick them down much if any, so you can slide a body of these frames apart and ascertain the condition of the center of your colony without disturbing them much. I have used this style of frame two seasons. At first I thought they might be more objected to in handling than a swinging or loose frame; but now I find I can get at what I want to ascertain at the center of a colony, in much less time than with any other frame I have ever used. I think there isn't any gain in handling a brood-chamber over too often; and for many advantages, I think the closed-end frames will be of common use. W. H. NORTON.

Skowhegan, Me.

ANOTHER SWARM THAT LIVED AND PROSPERED IN THE OPEN AIR.

Did you ever know or hear of a swarm of bees building their comb in the open air, in the limbs of a tree, in this country? I believe they do in tropical countries. In going through my pear orchard in November, after the leaves had fallen, I saw what I took to be a hornet's nest; but on examination I found it was a large bunch of comb, built by a swarm of bees. I got a ladder, and took it down. It is quite a curiosity, and I think it ought to be preserved. If you would like to have it to show to your visiting friends, I will send it to you. W. W. YOUNG.

Worthington, Ky., Dec. 18.

[Bees don't very often build combs in the open air, but we get reports of it from time to time, but more particularly from California. The comb might be a curiosity for the World's Columbian Fair. Dr. Mason, can't you use it? If so, give our friend instructions how and where to send it.]

IS IT CHEAPER TO RAISE BEES BY THE POUND THAN TO BUY THEM?

What will it cost to raise, say, 100 lbs. of bees by feeding sugar to the required number of hives, supposing the weather warm, plenty of pollen to be gathered within a short distance, but no honey, or too little of it to be considered? Or is it cheaper to buy than to raise them by the pound?

Knoxville, Tenn. ADRIAN GETAZ.

[It is cheaper to raise the bees by feeding, usually, than to buy; just how much, we can not tell. A good deal depends upon locality as to the price of bees. In a good many places, bees that are blacks and hybrids can be bought for a mere song after a poor honey season.]

QUESTIONS REGARDING FIXED FRAMES.

1. In adopting the fixed distance with closed-end-bar frame, will it interfere with the interchanging of frames throughout the apiary? 2. Is it possible to get combs built so true and straight that they may be used *anywhere* and in *any* hive, without pinching bees, or *vice versa*—widening the fixed distance between combs? 3. Will it be practicable at all times to clamp the frames tight together with follower and wedge? I should like very much to hear the opinion of the Solons. E. S. BROOKS.

Silverton, Or., Jan. 21.

[1. There is no trouble about interchanging frames for fixed distances; at least, bee-keepers who own colonies by the 500 seem to experience no trouble.

2. Yes, sir. That is just the way to get combs straight and true, by having fixed distances.

3. There will be no trouble if your hive is made right. If the Solons of fixed distances disagree with the answers made above, will they please correct?]

SAWDUST IN PLACE OF CHAFF, ETC.

1. Is sawdust good packing for chaff hives? 2. Is the Gallup hive as good or better than the Langstroth? 3. I have a large underground basement under the barn. Would it be a good place to winter bees in one end, and have stock in the other, by taking up the floor where the bees are? It is a stone-wall basement, well ventilated. It hardly ever freezes in it.

LEWIS LEIT.

Mayville, Tuscola Co., Mich.

[1. Yes, nearly as good, only it makes hives too heavy. Wheat chaff is the lightest of packings unless we except dried leaves. 2. There is no difference—at least, reports show none. It is not so much the frame as the bee-keeper, and the *protection* he gives the bees. 3. We should think so.]

MANUM'S WINTERING.

My bees had their first fly this season March 11. I opened them up in two apiaries, and found them in good condition. They appear to have wintered well. We Vermonters are very hopeful that the coming season will be a good one—at least, the prospects are good.

Bristol, Vt., March 17. A. E. MANUM.

A CAUTION IN THE USE OF SULPHURIC ACID.

Why did you not caution the friends about the danger of putting sulphuric acid into hot water when commenting on F. A. Salisbury's article, on page 121? I call your attention to this, lest some one should lose an eye, or be badly injured otherwise. J. S. HUGHES.

Mt. Zion, Ill., Feb. 19.

[There have been a great many accidents with sulphuric acid; but, used as given in GLEANINGS, we think nothing serious will follow.]

HOFFMAN FRAMES QUEEN-EXCLUDING.

Friend Root:—I am making an improved Hoffman brood-frame. I am cutting out on each side of the top-bar scant $\frac{3}{32}$ of an inch, which leaves about $\frac{5}{32}$, which I think will make them queen-excluding. I will try two or three hives with these frames next season, if I live. I should like to have some one else try this kind of brood-frame, and report through Gleanings. **H. Mansperger.**

Lewistown, Mo., Jan. 26.

[You will hardly be able to make Hoffman frames queen-excluding in the way you suggest. Propolis will accumulate between the edges so as to widen the spaces. You may be able at first, with good workmanship, to make it work.]

GLUE FOR LABELING TIN—ONE THAT GIVES PERFECT SATISFACTION.

As I was unable, during the busy season, to "keep up with the times," I have been reading up Gleanings more thoroughly during the winter months. I see in April 15th No., 1890, your inquiry for a better plan for fastening labels to tin. Here is a recipe for a glue that has worked perfectly. I have used it five or six years, and have never known a label to get loose when properly applied with it. It was given me by my friend D. E. Brubaker, now of Mt. Morris, Ill., while visiting me in 1886. He says it has given him entire satisfaction for ten years:

Stir 2 oz. pulverized borax into 1 qt. boiling water. When dissolved, add 4 oz. gum shellac. Stir while it boils, until all is dissolved. Apply with a brush in the usual way.

I prefer using a little less water, especially if the labels are small and stiff; then if it gets too thick to apply readily, warm it a little or add a little hot water. After applying the label I press a damp cloth over it to press out and wipe off any surplus glue that may come to the edge.

Mt. Vernon, Ia., Feb. 14. **Oliver Foster.**

[The following is what Mr. Brubaker himself says regarding it, in answer to a letter from Mr. Foster:]

Oliver Foster—Dear Sir:—In reply to your inquiry as to whether I would have any objections to your giving the readers of Gleanings my recipe for gluing on labels, I will say, most assuredly, I have none, and I feel that the readers of that excellent paper are entitled to it. I have found the preparation to give entire satisfaction for the past ten years. From my experience you can recommend it with entire confidence. **D. E. Brubaker.**

Mt. Morris, Ill., Feb. 11.

[We tried a sample of the glue sent by Mr. Foster, made according to the directions above. It makes the labels stick with a firm grip on tin, and is, perhaps, the best of any thing ever given. We have long wanted some suitable glue that would answer the purpose. Almost any thing will stick labels to glass; but when it comes to tin it is another thing.]

DO BEES PROGNOSTICATE?

I will mention, in confirmation of your suggestion, that bees do not prognosticate the coming season, but are influenced only by present conditions. About 32 years since, I lived in Guernsey Co., O., and kept bees. I think it was the 4th of June, 1859, we had a hard freeze, killing the corn. The wheat that was headed out, and all the clover that was in bloom, was killed, together with almost all other bloom. The bees had had many drones, and were ready to swarm. Within three or four days after this, the bees had killed all their drones, even destroying the drone larvæ. But soon after, bloom again became abundant, the bees reared a new set of drones, and swarmed as usual.

Ventura, Cal., Feb. 10. **R. Wilkin.**

WHITEWASH AGAIN, FOR HIVES.

I see on page 51, in your foot-notes to William G. Hewes, you speak of whitewash for hives. I would say that, to make whitewash for hives, use whiting and glue, about ¼ lb. glue to a common pail of whitewash. It will not crack off, nor soil one's clothes, and will last much better than lime. It is also good for filling old buildings preparatory to painting. It should be used hot. **John Burr.**

Braceville, Ill., Jan. 25.

[We have used glue considerably for whitewashing the inside of our buildings, but we were informed by our "boss mason" that glue would not answer for outdoor exposure—that grease or oil would have to be used instead.]

CLEAN GRAHAM FLOUR.

Buy the wheat just as soon as thrashed, and before it is put into a dirty bin and run over by the rats and mice; then look it over by putting a gallon or so into a large pan, and pick out the bits of straws and hulls, and grind it on a small machine attached to a horse-power or windmill. Mr. Axtell has one attached to his horse-power. We can grind it very fine by grinding it twice, or it may be ground very coarse, and used as cracked wheat. If boiled until tender, and eaten with honey and new milk or cream, it is delicious and very healthful, especially to one troubled with indigestion.

A good many told me, during the past year, they could not get good graham flour since the roller process came into use for making white flour, and that the graham they now get seemed more like poor white flour mixed with bran, which can not be nearly so healthful as to get good wheat and make our own flour, which makes very sweet bread.

As it is difficult to get an oven hot enough to bake graham gems made of only flour and water, so as to be light, I usually make my graham bread with yeast, as I do other light bread, first setting the sponge of white flour, and, when light, mix with graham flour. Mix just as stiff as can be stirred with an iron spoon, or just as soft as a loaf can be formed with the hands, and place in pans to bake, or let it stand to rise once after putting in the graham flour. In that case a little soda should be added, as graham bread sours more quickly than white. It also rises more quickly, and should be kept cooler while rising, if intended to be baked at the same time as the white bread.

HOW TO COOK EGGS.

Not until a few weeks ago did I learn how to cook eggs so as to be healthful, so that the white will be thickened like starch, but not be hard and leathery, and at the same time the yolk will be set also. Put fresh eggs into a cup or kettle of cold water, and let it stand on the stove till they come to a boil; then remove immediately. If the stove was not too hot or too cold you will find them cooked very nicely.

Roseville, Ill. **Mrs. L. C. Axtell.**

SPRAYING FRUIT-TREES.

I want to spray my pear, cherry, and plum trees, when in blossom, with Paris green. My bee-stands are all about them. Will the poison affect the bees or honey? **A. T. White.**

Antioch, Ill., Feb. 5.

[Spray your trees just after the blossoms have fallen off—earlier or later will do but little good to the trees. After the blossoms are gone, of course the bees will not visit the trees, and no harm will result.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

A WONDERFUL AND STARTLING DISCOVERY, EMANATING FROM OUR EXPERIMENT STATIONS.

Just now we have something that seems indeed too good to be true. I do not know who first suggested the idea, but our Ohio Bulletin gives the credit of the experiment to the Cornell University, at Ithaca, N. Y. Like many other great strides, it seems that several of the Experiment Stations have had a hand in it. For some time back, reports have shown that varieties of strawberries that do not bear pollen have grown greater crops and larger berries than the perfect (or pollen-bearing) varieties; and it was suggested that this was due to the fact that it requires much of the energy and strength of the plant to perfect the pollen. Recently our Ohio Station discovered that asparagus-plants are both pollen-bearing and non-pollen-bearing, or male and female; and that, if we select only the male plants, or those that produce no blossoms or berries, we shall get much stronger shoots. And now Cornell comes in and tells us that we may cut the tassels from every other row of corn in our cornfields; and that those stalks or hills not allowed to bear tassels will give—what do you suppose? Why, not only larger and better corn, but *50 per cent more* in quantity. In the experiments, the tassel was snapped off just as soon as it could be done handily, and the field was gone over three times. In the Bulletin, a full record is made of the experiments. That there might be no mistake in the conclusions reached, "the aggregate results of 24 distinct duplicate experiments" were taken, "each of which alone showed the same thing as the aggregate of all." If this is really true, it bids fair to be one of the greatest achievements the world has ever known in agricultural science; and, of course, the same thing, or something similar, may be applied to all plants that bear pollen on one plant and fruit on another. In order to test it early we have planted some corn in our hot-bed across the way; and just as soon as the tassel is visible, "amputation" is to be commenced. Of course, enough pollen-bearing stalks must be in the vicinity to insure perfect fertilization. The success of the experiments is based on the fact that nature furnishes a great surplus of pollen, as plants are ordinarily grown and closely cropped on our fields. A parallel case is the restriction of drone production in our bee-hives. In their native state it is quite important that every hive should rear many thousands of drones; but what would be thought of the apiarist nowadays who would permit drones to mature and issue by the thousands in every hive of an apiary of 100 colonies or more? One hive in a hundred could nearly if not quite rear drones for them all; and the wonderful fact that confronts us now is, that possibly one stalk of corn can furnish pollen-dust enough for not only two, six, a dozen, but may be *twenty* stalks of corn. Who knows? And is it not possible, dear friends, that farming *is* going to pay after all, when we just get the *hang* of things, and get acquainted with old Dame Nature?

DO COMMERCIAL FERTILIZERS PAY?

In the report on corn of the Ohio Experiment Station for February, 1891, we find the following:

> No practical benefit was received from the use of commercial fertilizers. The increased yields from the use of stable manure probably repaid the cost of the application, and left some profit.

Now, friends, this is serious business. Farmers are complaining bitterly already that their crops do not pay cost. If in addition to this they are paying out their hard earnings for commercial fertilizers that don't pay, it is a fearful thing to contemplate. The trouble seems to be, that so many experiments are made without testing alternate rows with no fertilizers. The use of phosphate on rye and buckwheat, on our own grounds, pays, without question. But I have never been able to demonstrate to my satisfaction that any of the chemical fertilizers do any good whatever on sweet corn and most other market-garden crops. Stable manure, guano, ashes, and, in some cases, lime, produce marked results. But I have for years been coming to the conclusion that it paid us to put our money into stable manure; and for vegetable-plants in our plant-beds, guano often pays, unquestionably. Lime or ashes used with guano, or with stable manure, often make it act more promptly. The lime also destroys insects, and, where used in sufficient quantities, it destroys angleworms by the thousands. Now then: Before you invest very much money in any commercial fertilizers, experiment by putting the fertilizer on strips clear through your fields. After you have shown conclusively, by experimenting in this way, that it is worth what it costs, then invest, and not before. Two or three years ago I saw so much said in the papers about the nitrate of soda that I got a bagful. As we had a very pretty lawn in front of the house I thought I would astonish the family and the neighbors by showing them what it would do. So I marked out the letters on the lawn, "A. I. R." Then I sprinkled nitrate of soda along the letters. As I did not know just how much to put on, I put it very heavily on some letters, and lighter on others, and watched anxiously for the extra growth and color where the nitrate was put. Well, the lawn got to be very nice and green all over; but during the whole summer I saw nothing that enabled me to detect a particle of difference in the growth or color of the grass where the nitrate was put on the letters. Then I tried the nitrate on other things; but at the present writing I have never found it to produce any benefit perceptible to the eye or to other tests, except on a crop of spinach. Just now I have been testing it on spinach in the greenhouse; but even there no one can see a particle of difference where the nitrate was put.

Since writing the above I have been reading what "Joseph" has to say in the *Farm and Fireside* about the use of nitrate of soda. Here is a short extract:

> I have repeatedly spoken of the really wonderful effects often noticed from the use of nitrate of soda. I shall never fail to use it largely on spinach, onions, cabbage, celery-plants, etc., hereafter.

Other writers have spoken of it in the same way. Now, there is something about this that troubles me. I wonder whether it is possible that our poor success is on account of the heavy rains we have been having for two or three seasons back. Joseph speaks in the same article of their severe and long-continued drouth. Is it possible that nitrate of soda would overcome to some extent a lack of moisture? Can't our experiment stations explain these wonderful differences in results?

SOME HINTS FOR SOWING CELERY AND OTHER SMALL SEEDS.

Cultivate your flower-garden;
  All weeds and thorns subdue;
Negligence is hard to pardon,
  And always will be charged *to you*.

Localities differ. This should always be borne in mind. For instance, when celery is sown in the open ground, where it rains *every day* nothing would be required but a border of a few inches around the elevated seed-bed, to keep the seed from washing away. In a place where the seed-bed might get very dry, however, a coarse fabric, say a covering made of bran-sacks, should be used. For the first few days, until the seed germinates, lay it flat on the ground, and it will keep the soil and seed from being disturbed while using the sprinkler, and guard against too heavy rains, and to give, partly, sun and shade. The bed is also warmed better by the sun, where thus covered. I have observed that a great amount of seed, money, time, and work, is annually lost because *seeds do not germinate*, even though the seed is good. The time is thereby irretrievably lost. While the seed is germinating, small strips of wood should be nailed on the frame, near enough to keep the cover a few inches above the bed. The cloth should be nailed to the frame, with laths at one side. It should be fastened with loops on the other sides, in order to open quickly and give the full sun if need be.

Closer attention is required by delicate and small flower seed. We sift on the seed about $\frac{1}{16}$ of an inch of sandy loam, and press it down with boards, in the fashion of using snow-shoes. The smallest seed does not require any covering, but only some pressure, and a shade for some days with a piece of cheese-cloth. Of course, the nature of the flower must be known—some require almost a full sun, and others nearly full shade. If the seed is sown in nearly dry soil it should not be immediately drenched. Better wait 12 or 24 hours. In watering we should imitate nature—water only when required, but then thoroughly. Imitate dew, with a syringe. Suppose seed is sown in damp soil, and pressed down, and the bed is allowed to become dry afterward; then a partial failure is sure to follow. The seed will swell immediately; and, if allowed to dry, will shrink again. The germinating power is then checked or destroyed. The result is, feeble plants, or none at all. Again, when seed is kept too wet at the start, it will burst open, and the same results follow. THEODORE LOHF.

Denver, Col., March 11.

RAISING POPCORN—A NEW INDUSTRY FOR THE BOYS.

Mr. H. R. Wright says: "We are hearing from our advertisement from every quarter." Inclosed with the above was the following, which we presume is in answer to inquiries brought out by his advertisement:

Dear Sir:—We bought last season 50 carloads of popping-corn of all varieties, and found the "eight-rowed" (or "Shaker") variety gave best satisfaction in every way, maturing earlier and yielding more per acre, and, having long ears and no nubbins, husks easier. Having a very small cob, it cures quicker and yields more shelled corn than any other variety. It has a large round kernel, and pops larger than any other. It is very white when popped, as all popping-corn should be, for no yellow, red, or any colored corn looks well when popped. If this variety of corn is properly cultivated it will yield per acre equal to common corn, and we never bought any less than 2½ to 3½ cts. per lb., which is about three times as much as common corn sells at. We buy all varieties, and will make a price at any time on receipt of sample. We want 100 carloads next season, at least. To make a sure success of growing it, procure the best possible seed. Plant early, and not near any other corn. Leave in the field on stalk as long as possible. Do not shock nor allow it to sweat in husk or anywhere else. Weather-cure as much as possible, and don't kiln-dry or force dry by any heat. The only proper way to cure corn is by freezing weather in a crib, or in an open building, spread out. It will always be ready to pop satisfactorily by January or February. You can't plant too much. We will buy all you raise, at good prices. We will select seed ears of any variety you wish, and send you, on receipt of 10 cts. per lb. for any amount you may want under 50 lbs., or 8 cts. for over that amount. H. R. WRIGHT.

Albany, N. Y., March 21.

[Now, boys, here is a chance for you; and I suppose the "new discovery" (pruning off the tassels) will work as well with popcorn as with any thing else. Why shouldn't it?]

RECIPE FOR CANNING PUMPKIN.

I have canned them successfully for two years, and used a mixture of field pumpkins. Cook till tender, put through a sieve, cook again as long as there is water in them. The secret lies in thorough cooking. I used tin cans, and sealed them with sealing-wax. MRS. J. K. MCCLURY.

Lima, Allen Co., Ohio.

MYSELF AND MY NEIGHBORS.

Feed my lambs.—JOHN 21:15.

Yesterday I had the toothache. I suppose it is a good thing to have the toothache once in a while. There are several lessons it teaches us. One is, to be thankful when we do *not* have it. Another is, to resist with all our might the temptation to be impatient and hasty when writhing under pain we can not escape. Another is, it bids us have sympathy for others when they are suffering. When it first came on I stopped it with Porter's Cure of Pain. Now, it has been so fashionable lately to go on about drugs and patent medicines, and the like, I do not know but I needed a little lesson of charity in that direction. The above remedy I do think a boon to mankind. It relieves pain almost instantly—that is, in the majority of cases. Finally, during the severe attack yesterday, however, even my old remedy did not suffice. I bathed my face until the tears ran from my eyes, and my mouth smarted so from the hot liniment that I could only walk the floor and pray for patience.

"But, why didn't you have the tooth pulled, Bro. Root?"

Well, I did not want to spare the tooth; and, besides, I remembered how fearfully it hurt me when I had just one tooth pulled, perhaps twenty-five years ago. I had been staying in a warm room, and keeping my face up by the steam-pipes, for many times I have found relief in that way. I happened to look out of the window, however, while suffering, and saw something in the new hot-bed that needed my attention. I put on my overcoat and rushed out, and got so busy directing the boys that I either forgot the toothache, or else the toothache forgot me; and then I discovered that I felt better out in the open air than I did in a warm room. How many things there are to learn in caring for these bodies of ours! and how often we blunder before we find out what nature wants! I did not have any more of the toothache until meeting-time. Revival meetings are going on at one of our churches; but as there was a cold damp east wind, my wife urged that I had better stay at home. Some way my conscience seemed to tell me, however, that I ought to be there. So I started. It is a full half-mile to the church. Before I got a quarter of the way, the east wind started my tooth to aching again, and I turned around, a little sadly, and went back home. I tried to have faith to believe that God had some *lesson* for me to learn, in a line with this toothache. But I could not see just how any good could come from being kept from church. I went back home with a rather small amount of faith, I must confess. I took a book and sat close up by the base-burner, and *this* time the heat of the stove seemed to drive the pain away. When I had sat there for perhaps half an hour, and finished the book I was reading, I looked at the clock and wondered whether I hadn't better go, even if it *were* late. With my thorough toasting by the stove I concluded I could keep pretty warm until I reached the church. I felt a little happier after I started. The sermon was more than half over, and I disliked to disturb the preaching. But there were no seats except away up in front. I started once to go up, but I hesitated and turned back. The usher whispered that I might get a seat among the boys at the other door. Now, I had not a glimpse of a thought that there was any *providence* in my being late, or in the fact that I must ask the boys to squeeze up together a little, and give me a seat in that particular corner. There was a great lot of boys all around me, some of my own, and one or two among them that I had not got along with very well. I remember wondering what had induced so many to come. From what I knew of them I did not think they ever had very many if any serious thoughts, and they did not look then very serious either. They were not noisy, but there was quite a little exchanging of glances, and smiling; and in my poor feeble attitude of heart at just that time I could not see that there was very much in the sermon to interest them. It seemed away above their heads. To tell the *truth*, I got drowsy, and I meditated slipping out and going home as soon as they commenced to sing the first hymn at the close of the sermon. One reason why I got drowsy was, that the only window that afforded any fresh air had just been closed. An old gentleman with a rather bald head found the breeze rather too much for him, and signified to the janitor to close it. As he shut it clear up, I almost gave a groan, thinking that my spirituality, for the evening at least, was about extinguished with that last bit of fresh air. Now, one of my crosses, as you may remember, is to be obliged to listen to a sermon when the room is full of bad air. It actually makes me stupid and sort o' crazy. I do not mean to find fault, because I am not now in a fault-finding mood. But I made up my mind, that, if *I* ever sat near a window, and found the draft was making me take cold, I would surely take a seat somewhere else, instead of asking to have the air all cut off from the rest of the congregation. The sermon closed, finally, and the pastor's wife gave an excellent talk to the boys; but the air was so hot and close that I had not much faith that even it could do anybody any good. Perhaps I had better say, that *Satan* suggested the above thought, and may be the air was *not* so very bad after all. If others did not notice it, then it was better for me to pray for grace to bear it as best I could. Finally they rose up to sing. The pastor's wife urged them to come forward and bring their friends. To my surprise, quite a young boy—in fact, the youngest printer in the office where I am writing—commenced going to one and then to another of his companions, exhorting them to come right along *that night*, and make a start in the Christian life. I was surprised at the ease and self-possession with which he (usually bashful and diffident) undertook a task that would have been a hard one for myself. But when another young boy in my employ *assented*, and started to go with him up to the altar, I was still more surprised. A lot of young girls started in the same way. I began to wake up. I looked about me and caught the eye of one of the boys I have been praying for, and who works near me almost every day. Then I remembered something that his aunt had said to me some time before. It was something like this:

"Mr. Root, you do not know what a high opinion E. has of you. He thinks whatever *you* say is law and gospel, and I do believe that a word from you would have more effect than any thing the minister or even his *own relatives* could say to him."

Could it be that this boy was thinking of going forward too? and was it possible that an invitation from *myself* was all that was needed? But then I remembered that, only a few days before, somebody had heard him swearing right straight along, and that, too, when he was at play, and not angry with anybody. Something said, "Why, Mr. Root, it is not of any use; it will not be *best*, anyhow, to ask a boy to come forward to the anxious-seat who does such things as that. There can't be any *real* desire about him to be a Christian." Just at this point, however, they started up

"Just as I am, without one plea."

I prayed that God would guide me. Then I moved over to where my young friend sat. I talked with him some, but he was bashful and backward; yet something in his look seemed to tell me that the Holy Spirit was at work in the child's heart. And then I remembered how earnestly *I* had prayed for the Holy Spirit that morning, when I first got out of bed.

"E., will you not come forward and make a start for Christ, if I will go along with you to the anxious-seat?"

He looked me square in the face as he replied promptly and decidedly, "Yes, Mr. Root, I will go."

I went up with him, and whispered to the pastor's wife that I had brought one of my boys. You can not think how her face lighted up as she took him by the hand. She and her husband had been laboring for two weeks, working hard and earnestly, to the end that the result of the union meetings which we have been holding all winter might not be without a general revival. I knelt beside my young friend, and prayed for him. But another boy's face kept getting before me. It was the face of one with whom I had had much difficulty. That is, he had been reported so many times for bad behavior that I had talked with him again and again, and had even suspended him; and he had been dismissed finally, as I had supposed, only a few days before. After every reprimand, however, he had confessed his fault, and begged to be tried again. This had failed so many times, however, that I had lost heart. Just the day before, he said, with tears in his eyes, "Mr. Root, I know that I do not deserve another chance. I know it is just as you say, and I do not see what *is* the matter with me. It does not seem to be of any use for me to try to be good."

His principal trouble seemed to be, he was so full of fun and mischief that he not only wasted his time, but he hindered others more than he earned, and I got to thinking that forbearance had ceased to be a virtue—that he really did not *care* very much after all. This boy, however, had come to meeting; but I looked at his face and decided that he had come more out of a spirit of fun than for any thing else, and I gave up thinking it would be best to ask him to come forward. Then I thought of my little text—"O thou of little faith!"

I left the anxious-seat and went back, and pushed past the other boys until I came near A.

"A., do you not believe that, if you and I both should go forward to that anxious-seat, and both take a start on the rock Christ Jesus, we could get along together in our business relations? Will you not come forward if I go with you as I did with E.?"

"Mr. Root," said he, "I am ready to try it." And then I knew he was in dead earnest. I led him up, amid a general rejoicing. Now, dear friends, several temptations beset me at this point. I have been getting older and steadier within the past few years. I hope I have been getting where God can consistently trust me with spiritual prosperity. But after *two* boys had come right along with only a little exhortation, it seemed to me that I was going to get all of the boys in that corner—yes, whole seats full of them. Well, I am not sure but that such a thing *might* have been possible, if nothing but *Christ Jesus* had shone from my face when I went back to talk with them. The third one had started, and I thought he was coming forward. Then he hesitated, and said that he was afraid that he was rather young to take such a step. I talked with several more; but the example of one holding back had at least some effect on staying the rest. I was like poor Peter when he started to walk on the water, and began to get a little vain of my success. Now, somebody may ask right here, "Mr. Root, why do you take it for granted that it was a wise thing or the best thing to ask those boys to come forward, under the circumstances, especially the very young ones? Is it well to have them make such a start without counting the cost, and then have them give up and go back, as so many of them do?"

Well, I have studied on this matter, and I have prayed over it a good deal, and I have for years watched the result on boys who have thus started. "It *is* well to have them start. I never knew a boy to make such a start but that it proved to be a safeguard and a protection round about him. If he has been swearing, the consciousness of having made such a public promise is quite sure to keep him from it. Unless something extraordinary happens, the result of making such a start (in any of our churches) has always been, so far as I know, *good* and only *good;* and it almost always proves the turning-point in the boy's life. It often results in a complete change of companions and associates. The books he reads begin to assume a different character. His purposes and desires at once begin to change. He begins to *love righteousness* and to *hate iniquity.*"

As we knelt at the anxious-seat, a whole long row of us, a heavy responsibility began settling down upon my poor self, and I began to pray most earnestly, "O Lord, help me to remember the exceeding sacredness and solemnity of the step *I* have taken to-night. These young friends have given me their confidence; they have decided to be guided by my wisdom, and the future with them largely depends upon my poor self. Is it possible that I shall forget this sacred time and place, and be harsh and severe, as I have been in times past, perhaps, when these poor boys were doing the very best they knew how? Lord, help me to have more charity and more willingness to overlook mistakes; and help me to keep in mind more constantly the fact that *I* was a boy only a few brief years ago. Lord, help me in this most important duty that now devolves upon me, of "feeding" and ministering unto the precious "lambs" of thy fold. Help me to be more patient; help me to be more kind; and if it be indeed true that these (the lambs of thy fold) are looking to me with more faith and confidence than toward their pastor or relatives, O Lord. *help* me to be worthy of this confidence they have seen fit to repose in me. Help me to believe that, if they do not hold out, it will be largely my own fault."

I felt at once, as soon as I began talking the matter over with these boys, that *they* greatly feared they might not hold out, or that they might do something that would be inconsistent with even a young follower of Christ; therefore we were, as it would seem, standing on common ground. I am older than they, and I have been years in Christ's service; I am a teacher and an exhorter. They look to me with confidence, and wish my opinion in regard to this matter of starting out to be a Christian; therefore it is far more important that *my* example should be good and wise and kind. I feel to-day, it seems to me, as I never felt before, how much we need grace from on high. Yes, I need it just exactly as the boys need it, for more is required of me. And it is not the boys alone that live here in *Medina*, or that work at our factory who need praying for. It is the boys all over the United States of America; nay, wider still—the boys all over the wide world—the lambs of the flock. And the *boys* are by no means the only *sinners* concerned. The ministers have a responsibility to bear, and the parents and teachers. Jesus said to Peter, "Feed my lambs." Now, there are not only lots of lambs to be fed, but there are lots of Peters who are doing the feeding. May God help the Peters! May God help you and me, my friends!

I have been told that the children read these Home Papers, and the young men; and I know many parents and spiritual teachers read them also. In view of what I have said this morning, do you not, dear friends, all of you, feel the responsibility and the need of a deeper work of grace in your hearts? In view of this shall we not pray ever so much more earnestly than we *ever* have before, "Give us, O Lord, of thy Holy Spirit that we may discharge well and faithfully this office that we can not escape, and that so continually devolves upon us, of feeding and caring for the lambs of thy fold"?

The next evening I succeeded, through Christ Jesus, in bringing forward another of these boys. But this was the close of the revival meetings, and some way the boys had got a start in this new life, and it did not seem best to stop the meetings entirely; therefore two more meetings were held the present week. They were not so well attended as formerly, but there were many young people present. The pastor invited me to talk 15 minutes the last evening. Some way, when I planned my talk those boys and the young people kept coming up before me in my mind's eye again and again. I chose for my text, "The wages of sin is death; but the gift of God is eternal life through Jesus Christ our Lord." Before I began speaking, the pastor said something like this: "Mr. Root, the people of Medina could not have paid you any higher compliment than they have. See the youthful faces before you, and especially a lot of boys who have come to hear you talk. If we get the children we shall have the parents by and by." At the close of my talk, two more boys rose up and declared before the congregation that it was their purpose to serve Christ Jesus henceforth and for ever.

At the close of the meeting the good pastor called them all up around him; and by encouraging words, each boy rose to his feet, one after another, and gave his testimony in a few simple words. Many of these boys were so exceedingly bashful and timid that it was a very great cross indeed for them to speak in public at all. But their bright and smiling faces, after they had borne their cross in their own boyish way, would certainly have convinced anybody of the honesty and sincerity of the work in their own hearts. One young friend, who assists in the counter store, spoke something like this: "It pays to be a Christian, because it makes one feel happy while about his work, all through the day." Most of the testimonies were about as brief, and much in this line; and when I meet these boys as I pass along through our different departments, the very sight of them does me good. The report comes from the bosses of the different rooms, that they could not ask for better boys than we have now. And yet this is the report we get of some who had made us the most trouble before our revival meetings. Now, friends, does it very often, if ever, happen that any one starts out to follow Christ before he is old enough? Remember the injunction, "Feed my lambs."

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests

And when thou art converted, strengthen thy brethren.—LUKE 22 : 32.

BEES in "our cellar" are doing well—none lost so far, that we can see. April 15th may tell a different tale, however.

DR. MILLER tells how, without perforated zinc, to raise queens in a colony already having a laying queen, on page 270. It's a good suggestion.

WE learn from one of our French exchanges that there are in Germany over 20,000 members in the various apicultural societies of that country, and that the annual product of the bees exceeds 22 million francs.

IT takes extraordinarily good editing to boom a bee-journal that uses poor paper and ink, and is otherwise slovenly in typographical appearance. Perhaps some of the bee-journals that have started this year may take a hint. Bee-keepers are good judges of printing as well as some other folks.

EDITORIALS AND STRAY STAWS.

DR. MILLER says, on the first page of the journal, that the editorials are "covering so much ground in an interesting manner that, in a little while, I shall have nothing to manufacture Straws from." Why, doctor, you are crowding on one end of the journal, and we on the other. We shall have to quit crowding you, that's all.

ANOTHER NEW BEE-JOURNAL.

VOL. I. No. 1 of the *Missouri Bee-keeper*, a monthly edited by E. F. Quigley, is before us. It contains 16 pages, with a neat tinted cover, and its first appearance is good, compared with the way a good many bee-journals start. Let's see: A month ago or so we said we counted up seven bee-journals that had started since Jan. 1, and this one makes the eighth.

A SUGGESTION TO CORRESPONDENTS.

WE should be obliged to the writers for GLEANINGS if they would scatter head-lines through their articles. We are much more apt to choose such, when they are plainly written, than we are articles with no head-lines and no indication what they are about. Very often, by glancing through a manuscript, the head-lines give a hint that the article should be used at once, if at all. While there is such a great stack of unused manuscripts, and good ones too, those published will usually be the ones that are prepared and ready for the printer, other things being equal.

CLOSED-END FRAMES FOR MISSOURI.

THE editor of the *Missouri Bee-keeper* says that closed-end frames are his choice. He says: "We can handle them better than any hanging frame, and they are always properly spaced." Elsewhere in the same issue he says: "We put a few closed-end frames in our apiary three years ago, and have been increasing the number ever since. . . . . Our best yield has always been from colonies on closed-end frames. They build up early in the spring. A hive with closed-end frames and winter case is the coming hive." Last issue we asked whether closed-end frames were practical in the South, and intimated that possibly propolis might be so bad as to make them intolerable. As far south as Missouri they are not as intolerable as they might be. How is it further south, friends?

THE USES OF BASSWOOD IN LINN CO., IOWA.

WE are informed that there is a county in Iowa, named after the great number of basswood (or linn) trees, and it bears, therefore, the name of Linn Co., Mr. J. S. Stoneking, residing in that county at Bartram, says there is a plenty of basswood timber in the county, and, in fact, in all eastern Iowa. The railroad companies bought at Bartram, his postoffice, 3500 cords of wood, at $2.00 a cord, in 1891, a fourth of which was basswood. It makes the heart of a bee-keeper fairly ache to think of desecrating basswood for cordwood. It is bad enough to use it for sections, furniture, packing-boxes, and paper. Our correspondent says they also use the wood very largely in his vicinity for making kegs and barrels. This is certainly a better use to make of such valuable timber.

LARGE OR SMALL BEE-KEEPERS; THE DIFFERENCE BETWEEN THEM.

WE do not despise the small bee-keepers—oh, no! They often give us some of the best ideas and short cuts; but when a large bee-keeper, who owns over 500, 600, or, if you please, over 1000 colonies, is enthusiastic over a certain device, and he knows from long practical experience of its successful working, we feel as if his statement could not be lightly esteemed. Editors have been accused of overlooking the little bee-keepers, and seeking articles from the big bee-guns. There is some truth in it, but they naturally go where they can get the best information—that which rings with *experience*, and is redolent of the aroma of honey and the wax, and of the much-despised propolis. If a man with his thousand colonies finds a thing to be a success that is a money-maker, it will *probably* work pretty well, even with as small a number as ten colonies; but, mind you, you can not reverse this. What gives good satisfaction with ten or even a hundred colonies may not necessarily do for several hundred stocks.

FORECASTING RESULTS IN EXPERIMENTING; A SUGGESTION FOR EXPERIMENTAL STATIONS.

AN experimenter should be unbiased. When he starts out on a series of experiments to prove or disprove, he should be just as willing to arrive at one conclusion as another. The trouble with so much experimenting is, too much forecasting of conclusions; and the experimenter himself is quite inclined to make the thing come out just as he wants it to, on the principle of "I thought so," or, "I told you so." In other words, he should be just as willing to have his pet theories utterly annihilated as to have them substantiated. The man who says, "I told you so," or, "I thought so," when a thing happens to come out so and so, shows that he *wanted* the result to be so and so, no matter whether it be good or evil. It is just this disposition in human nature that makes the world a great deal of trouble; and, barring the one factor of locality, it explains more differences of opinion and more differences in conclusion than any other thing in apiculture. E. R. R.

ALUMINIUM—THE NEW METAL.

WE have just received 100 beautiful three-inch machinist's rules, made of *pure aluminium*, divided into 8ths, 16ths, and 32ds of an inch. This metal is almost as hard as silver, and so light that the rule will float on water if laid very carefully on the surface. This seems almost incredible. In fact, when one takes it in his hand he is almost startled to find that, although it looks like steel, it is almost as light as wood. It is as proof against rust and tarnish as gold itself, and even at its present price (about $1.00 per lb.) you *get so much* it already promises to be a formidable rival to brass; and when we recognize that it is better than silver to hold its luster, it seems to be destined at once to take the place—at least to a great extent—of both silver and copper. We can send you one postpaid by mail for only 25 cts. Steel rules, made as accurately as these are, usually cost 50 cts. or more.

MOVING A CARLOAD OF BEES TO COLORADO IN THE DEAD OF WINTER—A SUCCESS.

THE project of sending a carload of bees from Eastern New York to Fort Collins, Colorado (see p. 70), in the dead of winter, proved to be a success. We have just received a card to-day, March 26, which reads as follows:

> My carload of bees came through to this place Saturday evening, and were all unloaded the same night, and they had a good fly yesterday. I had unexpected success in getting them here in good condition. I will report particulars later.
>
> Fort Collins, Col., March 23. O. R. COE.

This success is phenomenal, and our friend Coe is to be congratulated. We were afraid he might have trouble in the dead of winter. He is not only now in a place where he is free from losses in winter and spring dwindling, but he has his bees where they commence gathering alfalfa honey soon—quite a scheme.

HOLDING A GRUDGE.

OUR friend W. I. Chamberlain gives us a bright thought in the *Ohio Farmer*, as follows:

> Then here is another man whose name is a "common noun, Smith." He thinks I don't like him because he once criticised an article of mine in the *New York Tribune* (which I had forgotten if I ever knew it), and once asked some hard questions at an institute (which also I had forgotten). Bless his dear heart! if I had laid up a grudge against every man of that sort, my soul would need a thousand pigeon-holes, all marked "grudge," and variously classified.

How many times this comes up through our correspondence! Somebody will have it that I am prejudiced, or that I have a grudge over something that has happened in the way of business. It reminds me of what Prof. Cook once said when I told him I feared I had hurt his feelings by something I had said carelessly. He replied: "Why, bless your heart, Bro. Root, this world is too full of important matters for us to take time to feel hurt, especially when we know each other as you and I do."

AN INGENIOUS COMPLIMENT.

SOMETIMES we get orders to stop GLEANINGS; but here is a subscriber who says he does not want it any *longer*. See:

> I do not want you to send GLEANINGS any *longer*; but how I wish it were a little *wider* and a good deal *thicker!* CHESTER OLMSTEAD.
>
> East Bloomfield, N. Y., March 28.

GOOD NEWS AT THE HOME OF THE HONEY-BEES.

JUST at the last moment, as we go to press, all things are brought to a standstill to announce the advent of a grandson to the founder of the Home of the Honey-bees. Ernest is going around full of smiles, and is as proud as—well, as proud as a young man ought to be when he first feels the thrill of being father to a eight-pound boy. He arrived Easter Sunday, March 29. A. I. R.

SOMETHING NEW IN THE LINE OF SMOKERS.

OUR friend Hill, of the *Bee-keepers' Guide* (it just now occurs to us that he has *not* been quite as friendly as he might have been, but never mind), has just gotten out something in the line of smokers, that, so far as we can judge by engravings, is, in many respects, ahead of any thing heretofore offered. The idea is so novel and unique that one feels ashamed of himself because he did not invent it long ago. My impression is, at the present writing, that he is entirely original in the idea. It is a cold-blast smoker, but it has a straight barrel, like the Bingham. The blast-tube is straight, so it is the easiest thing in the world to clean it, and yet it opens and shuts to put in fuel, handier and easier than any thing heretofore brought out; and the whole thing, when held in the hand, comes in just the most convenient shape for use. Send us an electrotype, friend Hill, and we will give your invention the notice it deserves, free of charge.

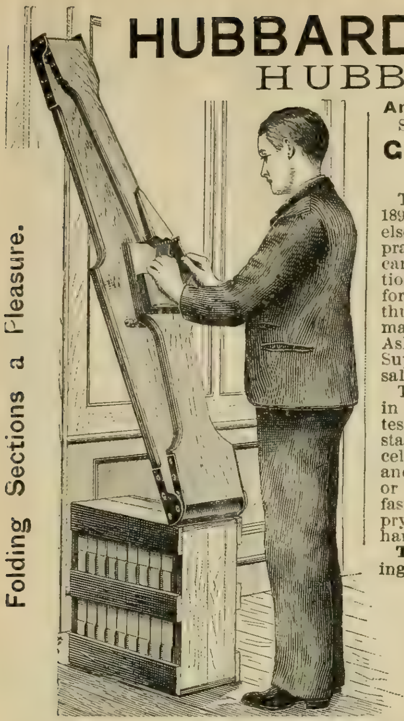
DADANT'S LATEST MASTERPIECE.

As if not satisfied with the laurels which he has just won in the English-speaking apicultural world in his revision of Langstroth's book, Mr. Dadant has just given to his own fellow-countrymen of France the same work, adapted, as nearly as can be, to that land. Side by side, the two books look exactly alike at first glance. The English book is a little thicker than the French, although the latter contains 73 pages more than the English work. One of the happiest things about this great undertaking is the just prominence which Mr. Dadant gives to those who helped him—particularly Mr. Charles F. Muth, of Cincinnati. In this connection we beg leave to translate a few lines. After speaking of Mr. Langstroth's inability to revise his own book, on account of his brain troubles, Mr. Dadant says:

> Having had knowledge of his desire, and of his futile attempts to accomplish so heavy a task, we thought (my son and I) that we would offer him our assistance. By the aid of our friend Charles F. Muth, who was enthusiastic over our project, the plan was soon carried out. After our conferences Mr. Langstroth was to pass in review all of our work, pointing out our oversights, suggesting ideas, etc. In consequence, the revision should have been called "Langstroth and Dadant." Unfortunately our friend's sickness rendered him incapable of doing the work. We continued writing, nevertheless, and, quite naturally, inserted his beautiful periods without marking them, thinking always that his name would appear in the title-page of the work. Finally it became necessary to do entirely without his assistance, but the idea did not occur to us to insert, in the English edition, published by us in 1889, some mark to indicate what we borrowed. Mr. Bertrand, of Nyon, Switzerland, having pointed out this omission, we have made every effort to discover what we copied, and have inserted it in brackets in the French edition, happy to render to our friend the honor that belongs to him.

HUBBARD SECTION PRESS,

HUBBARD BEE HIVE,


Folding Sections a Pleasure.

And other Apiarian Supplies.
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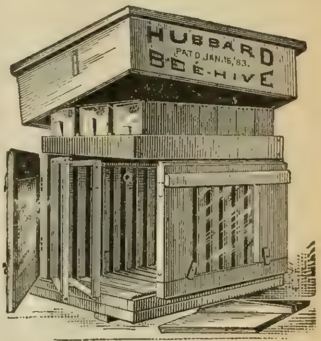
G. K. HUBBARD,
Fort Wayne, Ind.



This Section Press (Pat. June 17, 1890) is far in advance of anything else of the kind on the market. It is practically automatic. Both hands can be used to handle the sections, and a slight forward push forces together the dovetailing, thus completing the sections with marvelous rapidity. Price $2.50. Ask your supply dealer for it. Supply dealers, send for wholesale prices.

The HUBBARD HIVE has been in use 8 years, and has stood the test nobly. Trade has been constantly growing, owing to the excellent satisfaction it gives. If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs and kill bees while handling them you will be pleased with this hive.

The Man Who is Willing to Work can make money fast selling these hives. **$5.00 to $10.00 often made at it in a day.** Send for Circular.

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15c. For revised "1st Principles in Bee Culture." 104 pages—the *largest and best work of the kind for the price.* First 68 pages contain no advertisements, but are filled with such practical information as how to divide, transfer, introduce Queens, feed, unite, stop robbing, raise honey, etc. The book receives many compliments. If you do not like it, return it and get your money.

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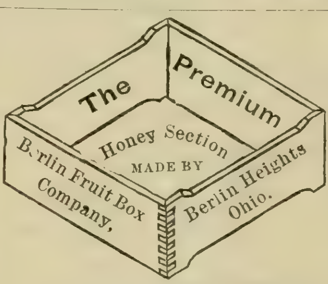

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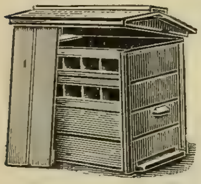
DOWN THEY GO!



For the next few days $1.25 will buy our 8-frame chaff hive, with 2 T supers and 8 heavy top-bar brood-frames.

Send for PRICE LIST.

ROE & KIRKPATRICK,
Union City, Ind.

1tfdb Please mention this paper.

QUEENS, QUEENS.

GOLDEN CARNIOLAN AND ITALIANS.

Price List Free.

H. ALLEY, Wenham, Essex Co., Mass.

Please mention this paper. 6tfd

Gentle · Carniolans.

To reduce my stock I will sell 50 colonies of Carniolan bees. All with carefully bred, prolific young queens. Prices reasonable.

5-8db **T. E. TURNER, Templeton, Wis.**

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

3tfdb

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16 tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

In writing advertisers please mention this paper.

Advanced Bee Culture; Its Methods and Management.

I am now engaged in writing and printing a book that is to bear this title. It is to take the place of my other book, *The Production of Comb Honey*, which will not be re-published. Although the new book will contain at least five or six times as much matter as *The Production of Comb Honey*, yet the price will be only 50 cts. The book is already partly printed, and will probably be out some time in April or May. If any of the friends would like to "help me along" in meeting the expenses of getting out the book, they can do so by sending their orders in advance. Such orders will be most thankfully received, and filled the *very day* the book is out. I will send the Review one year and the book for $1.25. The Review will be sent on receipt of order (I have plenty of back numbers to send it from the beginning of the year), and the book as soon as it is out. Stamps taken, either U. S. or Canadian. 10tfdb

W. Z. HUTCHINSON, Flint, Mich.

☞In responding to this advertisement mention Gleanings.

Leahy M'f'g Co.,

—UNDOUBTEDLY THE—

LARGEST PLANT IN THE WEST,

Built exclusively for the manufacture of Apiarian Supplies. **One and One-Half Acres Floor Space.** We sell as **Cheap as the Cheapest**, and our goods are as **Good as the Best**. Parties will do well to **write us** for estimates on large orders. We will send you our catalogue for **your name on a postal card.** Address **LEAHY MFG. CO.,**
7tfdb **Higginsville, Mo.**

Please mention this paper.

$5.00 IN MAY, AND $4.50 IN JUNE,

—WILL BUY—

A Strong Full Colony of Pure Italian Bees

in Root's new Dovetailed or the old Simplicity hive, as you prefer. Each to contain a fine tested queen and plenty of bees and brood. Everything first-class. Pure Japanese Buckwheat, per bu., $1; ½ bu., 60c; ¼ bu., 35c, bag included. Scotch Collie Pups, $4 each.

N. A. KNAPP, Rochester, Lorain Co., O.

6tfdb Please mention this paper.

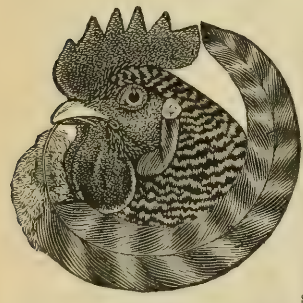
SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

☞In responding to this advertisement mention Gleanings.

OAK HILL POULTRY FARM.



The home of the best general-purpose fowl for the farmers and the fanciers, the Barred PLYMOUTH ROCKS.

This year, as in he past, I will de-ote my five large ›ops to Plymouth tocks only, and try o fill all orders promptly from first class stock.

Eggs at $1.50 per 13, and $1.00 for each additional setting in the same shipment. 6d

E. J. KENNEDY, Troy, Pa.

☞In responding to this advertisement mention Gleanings.

BUCKWHEAT.

MARTIN'S PROLIFIC.

This buckwheat under favorable conditions will yield 70 bushels per acre, as it is an enormous yielder—stands up well and endures drouth remarkably well. Last season it yielded double the quantity per acre sown, under the same or rather worse conditions than my Japanese, 100 rods distant, and did not blast one-half as bad. I think it will supersede the Japanese when better known. Price $1.50 per bushel, 85c per half bushel, bags included. $1.25 per bu. for 5 to 10 bushels. Remit by P. O. order, bank draft or registered letter to the originator, 7-10db

WM. MARTIN, CASS CITY, TUSCOLA CO., MICH.

Please mention this paper.

GOLDEN ITALIANS.

AND THE BEE-KEEPERS' REVIEW.

I have purchased the queen that, together with her bees, took **first premium** last fall at the Detroit Exposition. They are the Five-banded Golden Italians. The **handsomest** and **gentlest** bees, and the **yellowest** drones I have ever seen. They are not inclined to rob, and it is claimed they work on red clover. After June 1st I shall offer the daughters of this queen for $1.00 each, or 6 for $5.00. I have a number of tested queens, reared last season by H. Alley from his "one-hundred-dollar queen," that I will sell for $2.00 each. In order to secure a few orders early, to all persons who send me, before **May 1st,** $1.75, I will send one five-banded Golden Queen, and the **BEE-KEEPERS' REVIEW** one year; for $2.75 one of the tested Alley queens and the **REVIEW** one year. The **REVIEW** is published monthly by W. Z. Hutchinson, at $1.00 a year. The **REVIEW** will be sent on **receipt of order.** Untested queens will be sent after June 1st; tested queens the last of May. All orders will be filled in rotation. Make money orders payable at **Flint, Mich.** Address

ELMER HUTCHINSON,

Rogersville, Genesee Co., Mich.

Please mention this paper.

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.

M. S. ROOP, 520 East Broadway,
6-17db Council Bluffs, Ia.

☞In responding to this advertisement mention Gleanings.

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**

Bleachers, Refiners, and Importers of Beeswax,

5-16db **Syracuse, N. Y.**

☞In responding to this advertisement mention Gleanings.

"AND DON'T YOU FORGET IT"

"I tell you what, Jones, Levering Bros. sell the best goods and at the lowest prices of any one I've struck yet."

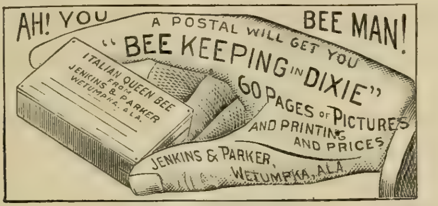
The LARGEST and BEST EQUIPPED BEE-HIVE FACTORY IN THE WEST.

THE NEW DOVETAILED HIVE A SPECIALTY.

Every thing used by practical bee-keepers by wholesale and retail. Send for our '91 illustrated price list and save money. Address 4-15db

LEVERING BROS., Wiota, Cass Co., Ia.

☞In responding to this advertisement mention GLEANINGS.


AH! YOU BEE MAN!
A POSTAL WILL GET YOU
"BEE KEEPING IN DIXIE"
60 PAGES OF PICTURES AND PRINTING AND PRICES
JENKINS & PARKER, WETUMPKA, ALA.
ITALIAN QUEEN BEE FROM JENKINS & PARKER WETUMPKA, ALA.

Please mention this paper. 2tfdb

SAVE FREIGHT

By buying your supplies near home. Catalogue for your name on a postal card. Address

4-8db **J. W. ROUSE & CO., Mexico, Mo.**

d Please mention this paper.

NEW * FACTORY.

Bee-Hives, Sections, Frames, Etc.

We have moved into our new factory, which is the largest and most complete in the world. We make the best goods, and sell them at the lowest prices. Write for free illustrated catalogue.

G. B. LEWIS CO.,

17-tfdb **WATERTOWN, WIS.**

☞In responding to this advertisement mention GLEANINGS.

1891. NEW BEE-HIVE FACTORY. 1891.

Root's Dovetailed Hive a specialty. Price List free. Save your freight, and order early of

1tfdb **GEO. W. COOK,**

Spring Hill, Johnson Co., Kan.

Please mention this paper.

Syracuse, New York,

IS A DEPOT FOR THE EAST FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

Don't buy foundation of us, for it would please you.

F. A. SALISBURY.

Our Foundation is kept for sale by

HENRY ALLEY, Wenham, Mass.

In writing to advertisers please mention this paper. 4tfdb

1891 Early Italian queens from bees bred for business. Each $1.00; six $4.50. Order now, pay when queen arrives.

7tfdb W. H. LAWS, Lavaca, Ark.

FOR SALE. Black Minorcas and Pekin duck eggs, $1.00 per 13. Bear-paw corn, 75c peck, $2.75 per bush. J. V. HURLESS, Archer, Harrison Co., O.

NEBRASKA

For Nuclei Colonies and Italian Queens. Circular and price list now ready. 7tfdb

J. M. YOUNG,

Box 874. **Plattsmouth, Neb.**

BEE-KEEPERS' SUPPLIES.

We manufacture all kinds of bee-keepers' supplies and novelties, for wholesale and retail trade.

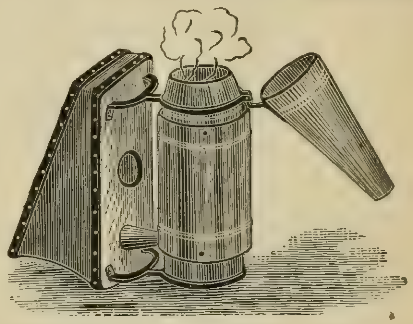
Best · Goods · at · Lowest · Prices.

Send for FREE illustrated catalogue for 1891.

THE BUCKEYE BEE SUPPLY CO.,

3-8db **NEW CARLISLE, OHIO.**

Please mention this paper.



Smokers, Foundation, and all kinds of bee-keepers' supplies furnished at lowest cash price. If you want the best Smoker in the market get one of the Quinby old reliable—made the strongest; and although the first cost is more than that of any other made, the Jumbo is the boss of all. It has been used constantly in yards for 8 years, and still it goes. Send and get price list of Smokers, Foundation, Sections, and every thing used in the apiary. Dealers should send for dealer's list on smokers.

4-14db W. E. CLARK, ORISKANY, N. Y.

☞In responding to this advertisement mention GLEANINGS.

SUPPLIES.

Standard goods, best shipping-point, reasonable price. 30-page catalogue free.

WALTER S. POUDER, 175 E. Walnut St.,

6-18db Indianapolis, Ind.

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞ Please mention GLEANINGS.

BEE-KEEPERS' SUPPLIES.

GOOD AS THE BEST; CHEAP AS THE CHEAPEST.

Send for my new Price List of Hives, Sections, Foundation, Queens, etc., etc. We are prepared to fill your orders at once, and guarantee satisfaction. Will pay 23c cash, or 25c in trade, for fair average BEESWAX, delivered here. 3-8db

A. A. WEAVER, Warrensburg, Johnson Co., Mo.

☞In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

I bought one of your Popular Histories of the Civil War last fall for 75 cts., and I would not take $5 for it if I could not get another. It is a fine book for so small a price. W. A. Peck.
Brunswick, O., Jan. 9.

KIND WORDS FOR OUR 1891 SECTIONS.

The goods you shipped to me by freight came through all right. The freight on the whole amount of 815 lbs. was only $10.40. The sections are just simply beautiful. Nothing was damaged in the least. Willie Douglas.
Lexington, Tex., Jan. 18.

The shears came to hand. They were for a Christmas present for my better half, and she was so highly pleased with them that she has shown them to her lady friends, and they are so pleased with them that they all want a pair, so I order ten pairs. Wm. Dyer.
Hastings Minn., Jan. 4.

OUR $12 SEWING-MACHINE.

Our sewing-machine came to hand in good order, and does as good work as a fifty-dollar machine. It certainly is a marvel for the money. Freight was $1.60. J. H. Archer.
Mt. Calm, Tex., Jan. 1.

GLEANINGS FOR ADVERTISING.

Please discontinue my advertisement, as I have received a considerable number of replies, and can surely make a selection from them. I find Gleanings is a splendid place to put an adv't to reach the eye of the public. Please accept thanks.
Monongah, W. Va., Feb. 28. S. Ray. Holbert.

WASH AND BE CLEAN.

What you say under the head of "Wash and be clean" is just what I have been looking for in every number of Gleanings; for I felt sure that it would come, sooner or later; and I thank you for it —not on my own account (for I had found out the remedy without the $4.00), but for humanity's sake.
Leon, Wis., Mar. 7. B. F. Fox.

HOW OUR COMPOUND ENGINE WORKS.

The engine works all right, except the bolts that connect the boxing on the main-shaft journal. They will work loose while the engine is running, and I have to stop very often to tighten them up. Perhaps you can suggest a remedy. I wish to tell you the good points about the engine that I have learned so far. My boiler is only 16 inches in diameter by 40 inches high. I have no trouble in keeping the steam at 120 lbs., and we run our hive machinery and a heavy 12-inch emery plow-share grinder at the same time, without any trouble, only as noted above. A. B. Herman.
Burnett's Creek, Ind., Mar. 10.

My goods were received in San Francisco Dec. 31. Every thing was correct. I am especially pleased with the section-former. It does beautiful work. Rate from Reno, $1.18; only about $3.00 saved.
Bouldin Island, Jan. 26. H. S. Thomas.

THE NEW IMPROVED DOVETAILED HIVE.

You have made some grand improvements on the Dovetailed hive, for I find the honey-board stuck fast every time with the old hive. However, I think the improved hive will do better. Don't go back on that outside shell for wintering. That strikes me as just about right, if it is put up well so it can be painted, as the senior said. A. T. McKibben.
Flag Spring, Ky.

A GOOD TESTIMONIAL FOR OUR ANEROID BAROMETER.

The aneroid barometer came to hand in good order, Tuesday last. I am more than pleased with it, and consider it the best investment for the money I have made for some time. I have used both mercurial and aneroid instruments costing several times the amount; but I ask for no better than the one you sent me. J. Y. Detwiler.
Toledo, O., Feb. 28.

BEE-KEEPER'S GUIDE.

16TH THOUSAND JUST OUT.

Plain, Practical, Scientific. Every farmer and bee-keeper should have it.
PRICE REDUCED TO $1.00. Liberal discount to dealers. Address

A. J. COOK, Agricultural College, Mich.
Please mention Gleanings.

UNTESTED QUEENS,

until June 1st, $1.00; after June 1st, 75 cts.; $8.00 per doz. Tested queens, after June 1st, $1.50. Select tested, $2.00. Bees by the pound until June 1st, $1; after June 1st, 75 cts. Can supply any demand from first of May. 8tfdb

PAUL L. VIALLON, BAYOU GOULA, LA.

☞In responding to this advertisement mention Gleanings.

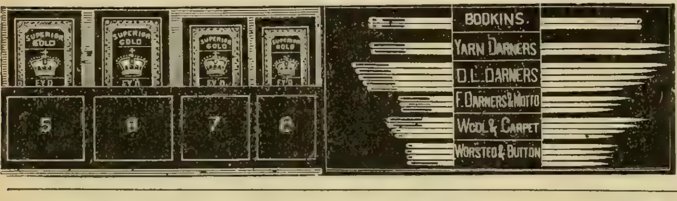
CHOICE ITALIAN

Queens reared in full colonies. Tested, $2.00; Untested, $1.00; Select tested, $3.00. One lb. of bees, $1 50; half lb., $1.00. 8d

I. L. PARKER, TRACY CITY, TENN.
Please mention this paper.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. Anthony Opp, Helena, Ark.

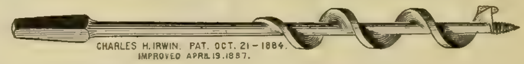
SUPERIOR GOLD-EYED NEEDLES.



Cut shows the contents of the package, half size. The bodkins, darners, etc., as shown, are, not gold-eyed, but there are besides these, four papers of elliptic gold-eyed needles such as are usually sold at 10c a paper. Our price for the pkg. 15c. 10 for $1.25, 100, $12. By mail 1c each extra.

A. I. ROOT, Medina, O.

IRWIN AUGER BIT.


CHARLES H. IRWIN. PAT. OCT. 21–1884.
IMPROVED APR. 19. 1887.

This is a superior bit formed from a steel rod. The spiral is rolled out by very heavy pressure of a special machine. They are guaranteed to always run free.

PRICE LIST.

Sixteenths	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Price each	25	25	28	31	35	38	41	45	48	51	55	60	65	70	75	80	85
Postage each	2	2	2	3	3	3	4	4	4	4	5	5	5	5	5	5	5

The first row of figures gives the size in sixteenths, the second the price each, and the third the postage each, if sent by mail. In lots of 5 or more, 5 per cent off, or a full set, 10 per cent off.

A. I. ROOT, Medina, O.

New Orleans Apiaries.

Italian and Carniolan bees and queens for sale.

Send in your orders now, and the money when bees or queens are wanted. Purity and safe arrival guaranteed. Address 7d

J. W. WINDER, 572 MAGAZINE ST., NEW ORLEANS.

Mention this paper.

FOR SALE. 50 colonies of bees in new hives, Simplicity frames, at $5.00 per colony. One-half cash, balance on time to suit the purchaser, with good security. 8-9d THOS. GEDYE,
Kangley, LaSalle Co., Ill.

FOR SALE!

50 TO 75 COLONIES ITALIAN BEES.

Big discount on nailed hives for next 30 days. Send for catalogue.

O. H. HYATT, SHENANDOAH, IOWA.

Black and Hybrid Queens For Sale.

Six fine mismated Italian queens, 40 cts. each.
F. C. MORROW, Wallaceburg, Ark.

I have 17 mismated queens in an out-apiary that I will sell April 20th, at 35c each, 6 for $2.00.
W. H. LAWS, Lavaca, Ark.

During April I will sell 40 hybrid queens, all of last year's raising, at 40c each, or 3 for for $1.00.
G. OBERKAMPF, New Braunfels, Comal Co., Tex.

Mismated queens at 50c each. Satisfaction guaranteed. D. D. Hammond, or Eden Valley Apiary, Malone, Ia.

Twelve hybrid queens for sale, 60 cts.; raised last fall. E. GREELEY, Lorain, Lorain Co., O.

We have in the South some 15 hybrid queens and some 12 black ones which we shall be glad to dispose of. We will furnish the hybrids for 75 cts. each, and the black ones 35 cts. each.
A. I. ROOT, Medina, Ohio.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 64, 63, 63, 63, 62, 33
25 green	12	100	100	1.75	
5 green	24	100	200	3.50	140. 8, green; 200 black.
35 green	26	100	217	3.50	This is below reg. pr. of 1¾ c.
14 green	28	100	233	4.08	224. 224, green.
15 green	30	100	250	4.37	
6 green	32	100	267	4 67	
18 green	36	100	300	5 25	
6 black	38	100	317	5.54	269, black; price $4.70
5 green	38	100	317	5.54	
3 black	40	100	333	5.83	
7 black	42	100	350	6.12	
15 green	30	100	250	4.37	

A. I. ROOT, Medina, Ohio.

Cash for Beeswax!

Will pay 28c per lb. cash, or 30c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 33c per lb., or 37c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.
A. I. ROOT, Medina, Ohio.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
72	2	20	⅝	95, 27; 60 in., 32.
60	2	19	¾	32, 28. 25.
72	2	19	¾	125, 103, 100, 100, 94, 88, 81, 73, 68, 67, 50, 48, 19.
30	2	18	1	60, 25; 12 in., 107.
60	2	18	1	67. 20.
72	2	18	1	61. 53, 48, 47, 37, 35, 22, 22.
36	2	17	1¼	23 15; 24 in. wide, 77; 60 in , 25.
12	2	16	1½	78; 18 in. wide, 72, 72, 40; 24 in. wide, 94. 88
36	2	16	1½	34, 32, 23; 30 in. wide, 46, 44, 24; 48 in. wide. 48.
72	2	16	1½	60, 58, 56; 48 in. wide, 48.
18	2	15	2	87, 61, 30: 12 in. wide, 100.
24	2	15	2	100, 90, 69, 52, 33, 33, 13, 12.
30	2	15	2	127, 21, 6; 60 in. wide, 21, 20.
36	2	15	2	17, 13, 7, 7, 7. 6, 5.
42	2	15	2	121, 35, 26 23, 20. 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 14.
36	2	14	3	29; 42 in., 71; 54 in. wide, 122.
24	1½	20	1	18 in. wide, 14; 30 in., 14.
42	2	14		85, 71, 59.
30	1½	19	1	33, 33, 36 in. wide, 47, 47.
42	1½	19	1	85, 59; 60 in., 56; 72 in., 64, 63, 10.
18	1½	18	1⅓	40, 14; 54 in., 12; 60 in., 34.
60	1½	18	1⅓	65, 19.
30	1½	16	2½	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1⅔	48, 12, 10; 24 in., 42; 30 in., 75; 48 in., 78
36	1¼	18	2	15, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 50.
32	1	18	2½	85, 32; 9 in., 32; 10 in., 20; 24 in., 23; 30 in., 69, 51.
36	1	18	2½	37; 48 in., 30; 60 in., 59.
9	¾	20	2¾	33, 7; 36 in., 75, 55.
9	¾	19	3	128.
24	3	16	1	46, 19: 36 in., 86; 42 in., 14.
36	3	15	1⅓	63; 48 in., 60.
48	3	14	1⅞	45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44, 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

CONTROL YOUR SWARMS.

N. D. West's coil wire queen-cell protectors will do it, and you can REQUEEN your apiary during the swarming season. Pronounced the BEST by such men as

CAPT. J. E. HETHERINGTON, CHERRY VALLEY, N. Y.,
P. H. ELWOOD, STARKVILLE, N. Y.,

and others. Cell-protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. See cut and description on page 321. Patent applied for. Address

N. D. WEST, MIDDLEBURGH, SCHOHARIE CO., N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEES & SUPPLIES FOR IOWA.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address *Oliver Foster*,
5-tfdb Mt. Vernon, Linn Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

YOU'RE TOO LATE!

If you intend to try **MY NEW SEEDLING POTATOES** and don't **SEND IN YOUR ORDER BEFORE the FIRST of MAY,** as, **after that** date, I **will not spare one,** and may **be all sold out before then.** If you intend to try for any of the premiums offered in this and the other journals, send in your order without delay. **Bulletin No. 70** of the **Mich. Agricultural College** again **places them at the head.** In connection with my former offers I will give all **a certificate** that will be taken as **part pay** on orders for **QUEENS** as follows: For $1.00 I will send 2 lbs. of my No. 4, and a certificate good for **50c:** for $2.00 I will send 1 lb. of each and a **75c certificate;** for $2.25 I will send 1 lb. each of No. 1 and 2, and 2 lbs. of No. 4 and a **$1.00 certificate.** I want **"YOU"** to try them and make you this offer. By you I mean **EVERYBODY** until sold out. At these prices **I PREPAY THE CHARGES.** 8d

JACOB T. TIMPE,
LOCK DRAWER 90. GRAND LEDGE, MICH.

☞In responding to this advertisement mention GLEANINGS.

BARGAINS.

SEND FOR '91 CIRCULAR

Dovetailed and Simplicity hives, Snow-white Sections, Foundation, wholesale and retail, Golden Italian Queens, 265 colonies of bees, etc. We furnish every thing needed in an apiary. Address

JOHN NEBEL & SON, HIGH HILL, MO.

FREE.

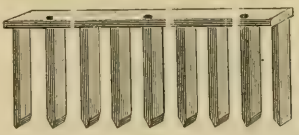
In writing to advertisers please mention this paper. 3-8db

5-BANDED GOLDEN ITALIANS.

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones $\frac{1}{3}$ to $\frac{4}{5}$ yellow. Won **1st Premium at Ill. State Fair** in 1890. Nearly 300 booked for 1891. Warranted Queens, May, $1.25, 6 for $6.00; after June 1st $1.00, 6 for $5.00. Special discount for large orders as to dealers. Have your order booked now in order to get them when wanted. Satisfaction guaranteed. No foul brood. Select Barred Plymouth Rock Eggs, $1 per 13. Good reference given.

1tfdb **S. F. & I. TREGO, Swedona Ill,**

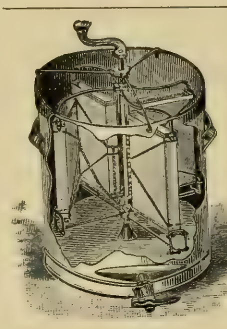
☞In responding to this advertisement mention GLEANINGS.



HOFFMAN FRAMES.

By cutting the top bar of my spacer, a hanging frame can be worked on the principle of the Hoffman frame. Price of spacers, $10.00 per 100.
8tfdb J. B. WILCOX, Manistee, Mich.

☞In responding to this advertisement mention GLEANINGS.



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM McCUNE & CO.,
21-20db **Sterling, Illinois.**

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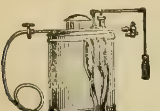


SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.** **PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES.** Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants** at **Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
-Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

A glimpse of our Factory, now making carloads of **Dovetailed Hives,** Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue,** 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. APRIL 15, 1891. No. 8.

STRAY STRAWS

FROM DR. C. C. MILLER.

DON'T TINKER with your bees unnecessarily.

SUGAR has a two-cent bounty. How about honey?

A GENERAL CALL for State associations. World's Fair.

B. E. RICE (*A. B. J.*) thinks painting hives "a loss of both time and money."

QUEEN-EXCLUDERS, says the *B. B. J.*, are indispensable in working for extracted honey.

A STANDARD FRAME may yet be adopted in California, according to a report in *C. B. K.*

I WISH friend Corneil had included a double wall without packing, in the experiments reported on page 207.

ST. PATRICK'S DAY, March 17, my four colonies outdoors had a good fly—I think the first full flight in four months.

EGGS ARE DESTROYED for me in queenless colonies in the hottest weather, as well as cooler. This in reply to G. E. Fradenburg, p. 229.

ANOTHER. The *Missouri Bee-keeper*, Unionville, Mo. Nicely printed, in type big enough for those hard of hearing. E. F. Quigley, editor.

ADULTERATION! Styan says that *straws* get into the cream he furnishes in *C. B. K.* Still, that may be borne if he doesn't water his cream too much.

"A LITTLE MIXED" is that last item on p. 229. Mr. James uses hives of bees to hatch chickens, but the Medina folks use hives without bees. Isn't an old hen better?

A BIG COUNTRY this. I didn't realize how big when I wrote my little hymn, "In January . . . . the bees store nary a drop." The *California Bee-keeper* says that won't do down there.

WOODEN SHOES are worn and liked by Mrs. Harrison. They keep the feet warm and dry. I had a pair. I don't know what became of them. I think my wife didn't like the looks of them.

AN ITEM on page 230 is headed, "A colony of bees which secrete no propolis," as if that were something strange. None of my bees secrete propolis. They just gather it from trees or something.

PORCELAIN DOOR-KNOBS get loose. One of ours got loose the other day, and, instead of throwing it away as usual, I put it into the fire with the metal shank in it, took it out when the lead melted, and it was as solid as when new. But it cracked the porcelain somewhat.

COWAN'S NEW BOOK. I've read it all through, although some of it was pretty hard to understand. It was like taking a dose of medicine a little, but I feel the better for it afterward. It's a capital book.

THAT OLD FRENCHMAN, Ch. Dadant, is not in his dotage, by any means. A strong and well-written article from his pen, of four pages, in the *Revue Internationale*, defends Father Langstroth against the charge of copying Debeauvoys and others.

A NEW THEORY of foul brood. A. Leech, in *A. B. J.*, says the moth-miller lays eggs in the cells beside the queen's eggs, which hatch out, suck the food from the bee larvæ, which die, causing foul brood. As the newspapers say, this lacks confirmation.

THE CHICKENS scratch up the posy-beds every now and then, and then your wife sheds a few quiet tears. I'll tell you how to make her happy. Fence in the beds with poultry-netting two feet high. You can step over it, but the hens don't know enough to fly over—at least our Plymouths and Banties don't.

AFTER PUTTING my bees in the cellar I noticed that they didn't hang in as large clusters under the frames as in the preceding winter. I didn't know why. To-day, March 18, the cellar being colder than early in the winter, the clusters are much larger than then. I don't know why. Do you?

HERE'S A "WRINKLE" from Walter Marshall, in *B. B. J.* He thinks the reason that some have trouble in using, for the second time, sections partially filled, is because of propolis on the edges of the cells. So he scrapes off the surface of the comb to within ⅜ of an inch of the midrib, early in the season, when the wax is brittle with cold. There's no slow working, and no *old* look when done.

MELILOT. Bignens, in *Revue Internationale*, reports a profitable crop of melilot, getting a good crop of honey during its bloom, while surrounding bee-keepers a mile or two distant got little or nothing. It was sown with barley, and sheep and cattle ate the straw greedily. Mr. Bertrand, the editor, says his pony ate a mixture of oats and melilot, and the pony much preferred it thus "perfumed" to the clear oats.

"WE" or "I"? Bro. Newman says "we" has the indorsement of Ernest on account of the plurality of editors. Yes, it's all right to say "we" for two. We do at our house. But when it's I, say I. I see the "I" is used in GLEANINGS in 15 different editorials where "I" was meant. Bro. Newman thinks "we" looks better. That's a matter of taste. He says "we" "has the indorsement of many centuries." True, and so it has for the chief ruler of a nation, and yet to-day the chief ruler of the greatest nation on earth says "I."

WAX SCALES are found, plenty of them, wasted on the bottom-board, when a swarm is hived in an empty hive without foundation or comb. Few or no wax scales are found on the bottom-board of a colony run for extracted honey, if they have abundance of empty combs. The case should be exactly reversed, if bees secrete wax whether needed or not. See the bearing on page 212, friend Root? I'm with Prof. Cook, but I can't answer your argument.

FOUL BROOD. S. Corneil, in *C. B. J.*, says foul brood may be carried in foundation. Melting in a sun extractor will not kill it, and heating to 160° in making foundation will not kill it. To be entirely safe, it must be heated to 257°, or kept at 200° for some days. D. A. Jones thinks this a case where "science and practice do not agree." He thinks "the heat necessary in making foundation is great enough to destroy the germs of foul brood." The thing needs careful consideration. See editorial, page 341.

GENERAL CORRESPONDENCE.

MANUM'S NEW METHODS OF RUNNING SEVERAL APIARIES ALONE.

SIX OUT-APIARIES AND ONE AT HOME, AND NO HELP TO BE HIRED.

"Why, how do you do, Henry? Walk in, and have a seat. How do the chickens prosper, and how many have you?"

"Well, Manum, I am pretty well; and as to the chicks, they are doing well. I have now 500, from two to six weeks old, and 500 eggs in the incubator."

"Well, well, Henry; you are going into the broiler business rather heavy, I should judge. You must think it a profitable business, or you would be more moderate in your new venture."

"Yes, I think it will pay better than the bees have for a few years past, though I shall not give up the bees, but work the two together; for, you see, the main work and attention with the chicks comes at a time when I can do nothing with the bees, as I start my incubators in December, and aim to dispose of my chickens by June 15th, after which my whole time is devoted to the bees."

"I believe, Henry, you raised a few broilers last year. Did you keep an account of the cost of raising them, so you *know* for a certainty that there is a profit in raising them?"

"Yes. I kept both debit and credit, and I know just what profit was made. Myself and partner cleared just $106.00 on 175 chicks, and expect to make a better average per cent this year with our new brooder-house, and better facilities. But, Manum, I came over to talk bees with you, and to ask you how you propose running your bees without help this season, if your method is no secret."

"No, Henry, I have no secrets pertaining to the bee-business, therefore I will try to explain to you, as best I can, just how I propose to manage.

"First, I shall do all in my power, through the month of May—by contracting and feeding—to stimulate brood-rearing, in order to get a large force of workers hatched out by the time clover blossoms, which is usually about June 10th; and as then is the time swarming commences, I shall remove the queens from such colonies as have started queen-cells, or that show any signs of preparing to swarm; then in eight days I remove all queen-cells found in these hives, except, perhaps, from one or two that I wish to rear queens from. In these I allow the cells to remain until they are old enough to transfer to the queen-nursery to hatch; and perhaps at this second visit I remove fifteen or twenty more queens, and in six or eight days more I again visit this yard and cut out queen-cells as before, both from the first lot where the queens were taken out—should there be any—and the second lot, and remove queens from as many more as I find preparing to swarm. Now, by the time I make the third visit I shall find a lot of young queens hatched in the nursery; and the colonies from which I removed the first queens will be in condition to receive and accept a virgin queen, so that I will run in a virgin queen in each colony. All this time I must manage to have a supply of virgin queens on hand, to introduce at each visit until I have gone over the whole yard; and, besides, I have all the other work to do in each yard, such as putting on and taking off sections, looking after the nuclei in which I have many queens fertilized for the market, caging and mailing queens, etc. In this way I can attend to six out-apiaries by going to each once a week. The seventh, being the home apiary of only 60 colonies, I can look after nights and mornings, or as I can best catch the time. By this method I can prevent swarming, and dispense with high-priced help; and, moreover, I am sure that each colony has a young queen in the fall."

"Well, Manum, do you think you can take care of seven apiaries alone?"

"Yes, Henry, I think I *could;* but I expect Fred to help me look after the sections and nuclei, and help other ways."

"What do you propose to do with the queens you remove?"

"I expect to sell a good many of them. As I offer them at a low price, many bee-keepers will avail themselves of this opportunity to introduce my strain into their apiaries. What I do not sell I shall use in making artificial swarms; for I must increase a little—at least enough to keep my number of colonies good."

"Do you think you will secure as much honey by this method as you would by allowing natural swarming?"

"Well, Henry, that is a question I am not fully prepared to answer. But my opinion is, I shall not, and I shall have to work harder myself. But I think, after deducting the expense of hired help, the result in *dollars* will be about the same with one method as the other, in a good season; while in a poor season I can save money by this plan of removing queens."

"What if there should come a rainy day or two—wouldn't that disarrange your visits to the out-apiaries?"

"No, not very much, for I aim to have at least one day's leeway, though I often am obliged to visit my apiaries in the rain; but by having my record-book constantly with me I know every morning just what must be done that day; and as I can, upon a pinch, visit two and even three yards in one day, I can many times manage to avoid being out in rainy weather, because I can work two yards in one day when it is necessary, in order to catch up with my work."

"How do you introduce virgin queens so successfully as you do?"

"I do that simply by rendering the colony hopelessly queenless, as I have stated above, by removing the old queen and keeping all queen-cells cut out until they have neither eggs nor larvæ with which to rear a queen, and then simply run the virgin queen in without ceremony. I usually run them in about the 15th day after removing the old queen, though the time varies from the 12th to the 20th day after, according as I have the time and the virgins to introduce."

"Do you run them in at the entrance or at the top of the hive?"

"Usually at the top. At the time this work is done the sections are on the hives, and I simply raise one corner of the enameled cloth that covers the sections, and let the queen run down among the bees in the sections. This is done so carefully that the bees are not disturbed in the least, and the queen is usually accepted. I introduced over 500 last season, and did not lose over a dozen."

"Would it not be better to give them a fertile queen instead of a virgin?"

"No, Henry, I think not, because such a queen would at once commence laying, and soon fill the combs with eggs, and there would be a large amount of honey consumed in rearing the brood, the bees from which would be useless to me as honey-gatherers, as the honey season would be over before such brood would hatch; while, on the other hand, by leaving them queenless 15 days, and ten to fifteen days more before the young queen commences to lay, makes at least 25 days, right in the best of the honey season, that they are without brood to feed; hence the honey they would have consumed is stored in the hive, and the colony is just as well off (for bees) in the fall as though a laying queen had been given them, because they have a part of July and the months of August and September in which to rear a stock of bees to carry the colony through the winter."

"Have you ever tried other methods to prevent swarming?"

"Yes, two or three of them, one of which I think is practical, and I shall practice it somewhat this season, and I believe it is original with me; and if you are in no hurry I will explain it to you, as I should like to have you try it this season."

"I don't think I had better stop now, as my chicks must be calling me by this time. I will call again in a few days, and shall be pleased to listen to the new ways; so, good-day."

"Why, what is the matter with you? What makes you so lame, Henry?"

"Oh! nothing, only a corn on one of my toes. I have sat here so long that it hurts at first starting off."

"Well, it must be a bad one, sure. You just undress your foot while I get something to put on that will surely cure it. There, I will saturate this little wad of cotton batting with extracted honey, and bind around the toe—so. There, now, dress your foot again, and I'll guarantee that to-morrow you will be thankful for the discovery."

"Well, Manum, you beat all the men I ever saw. I never have visited you yet without getting some new idea from you."

"For any new thought I may give you, or any one else, Henry, I take no credit to myself, as they originate with a higher intellect than my own. I am, like all other mortals, simply a medium through which an unseen force gives to the world these new ideas. Though many of these things I have gleaned from other mortals, through whom the same unseen force has expressed itself for the good of all, yet we should entertain no disposition to keep any good thing from our neighbors." A. E. MANUM.

Bristol, Vt.

[Very good, friend M. I suppose we are to understand by your concluding remark, that, if you should make some valuable discovery in regard to alleviating human suffering, you would not be one of the sort who would want $4.00 each from every man to whom you gave the secret. Here is our hand. Shake! But, hold on! While we are shaking hands cordially over this matter of curing a corn with extracted honey, I fear we shall not agree quite as well on the probability that you can run six out-apiaries, besides one at home, and do all the work *yourself*. If there should not be very much honey, and therefore not very much work to do, perhaps you might get along very well. But suppose we have a real old-fashioned season, where the honey comes day after day, as if it rained down, then where would one man be with six out-apiaries and one at home? When I was in Wisconsin I saw an apiary of toward 100 hives, with the hives so full of honey that the greater part of the bees were crowded out, and lay on the outside and in front. The proprietor said he *knew* the bees were losing their time in the very height of the season; but he had taken out honey all day, and it was then after four o'clock, and he was not going to work any more *for anybody*. I suppose that, in the town of Boscobel, people could be hired to work after supper as well as in other places. I remonstrated with him some, because he was going to let that harvest go to waste because of the lack of a little help. Never mind; we will not argue the case with you. But please tell us, through your notes, how you get along. Many others are interested in this very same problem of hiring help.]

CHIPS FROM E. FRANCE.

THE FLAT BOARD COVER AND ITS SLIDING MOTION.

In March 15th GLEANINGS, page 211, E. R. Root says, at the bottom of the first column, "You know that, when we put a flat cover on a hive, we kill bees if we set it flat down on the square edges of the hive; but with a sliding motion, in the hands of those who use that cover, there is not the least excuse for killing bees." Now, I just want to object to any thing being put on over the bees with a *sliding* motion. If there are bees over the frames, or on the square edges of the hive, that sliding motion rolls them up in bunches and kills them. My hives are all square edged on top, and we use a flat wood honey-board. When we put the honey-board on we use a little smoke to drive the bees down between the combs, and with a brush we brush the edges of the hive clean, and then put the board on flat, and kill *no* bees.

RAPID GROWTH OF BASSWOOD-SPROUTS.

About those basswood-sprouts (see page 223), two years ago I cleared off a yard for a new apiary. About the center of the yard there is a basswood stump two feet in diameter. The first year sprouts grew from that stump ten feet high and 1½ to 2 inches through near the ground. We cut them all off; but last year, sprouts grew again nearly as tall and large. Now, if only two or three of those sprouts had been left to take all the growth from the old roots, I think 10 years would have made a fair-sized saw-log.

ABSURD THEORIES: A GENUINE CHICKEN-STORY.

Again, page 227. J. D. Whittenburg, did the bees eat that wheat? No. What then? Mice. There are lots of false notions about bees. I have heard several men say, that, if bees were short of honey, if boiled chicken be placed under the hive, they would eat it and winter on it. Do I believe it? No. Mice again. My son Newel has just got back from the bee-keepers' convention, and says the chicken story was advanced there as a fact.

Several years ago a man told me he had a swarm of bees wintering on chicken. I went to see it. They had eaten up one chicken, and he was going to put in another. They were in an old box hive, and were a new swarm, and the hive was half full of combs. We tipped it up. Chicken bones were there, picked clean.

"There," he said, "see, meat all gone."

"Did the bees eat it?"

"Yes," he said.

I said, "Let me take the hive down. I want to investigate this case."

I took the hive off the stand and turned it over.

"See, there is a mouse-nest up on the cross-sticks, just at the bottom of the combs."

I put in my hand to take out the nest. As I took out the nest, out jumped a mouse—two or three of them, and away they ran. "See," I said, "mice eat your chicken."

"No," he said, "the bees eat the chicken."

We cleaned out the nest and mice, and cleaned off the bottom-board. This was in the middle of winter. I could see a little capped honey up in the combs yet. I told him I thought his bees would live until about the first of March, and then starve.

"Oh, no!" he said; "I will put in another chicken." He had one ready cooked and cool.

"All right, but let us keep the mice out this time." We put the hive back, put in the chicken, and fixed the hive to keep out mice.

About the middle of March I saw the man in town.

"Well, how are the bees?"

"Oh! the bees are dead."

"How about the chicken—did they eat it?"

"No." And just then he saw a man across the street whom he must see right off.

Now, this man was a bee-keeper, had 20 colonies of bees, and had kept them a long time. He was a man of good common sense otherwise; but he was very superstitious about bees, and had a good many notions just as absurd as his chicken theory.

RENDERING WITH WAX AND STEAM.

In Feb. 15th Gleanings, pages 120 and 121, Mr. F. A. Salisbury gives us an excellent article on rendering wax with steam and acid. I am satisfied that all he says is true, and am glad he wrote that article; also E. R.'s comments about the Dadants. All right; that will do first rate for you chaps who have steam; but how are we poor chaps going to raise the steam? Can a man who makes from 50 to 100 lbs. of wax per year afford to put in steam-works on purpose to render out his wax? Now, give us some cheap way of raising steam, and I am with you.

THAT TRADE-MARK.

Let every tub stand on its own bottom. I want my own trade-mark. If the name of E. France & Son pasted on a package of honey is not a sufficient guarantee of a first-class article, I don't want to ride into market on some other name, and I don't want some other fellow using our reputation. E. France.

Platteville, Wis., March 31.

[If I ever said any thing I felt sure of, friend F., it is the statement regarding the flat board cover which you call in question. I generally slide the cover on the hive, and so do all our boys, and we don't roll the bees up and kill them as you speak of. Of course, we use smoke to drive down most of the bees; but there are always a few there that will run up around the edges. By using a great deal of smoke we can drive them *all* down; but it is cruelty to the bees, and unnecessary. By your plan you have to bother with a bee-brush; but by our plan we use nothing but the smoker. Now, I know that I am not alone. Witness Dr. C. C. Miller, W. Z. Hutchinson, James Heddon, R. L. Taylor, Prof. Cook, and a good many others who might be mentioned, all of whom use their flat cover substantially as I have indicated. With your arrangement, however, I hardly think you can slide the cover on. You have and desire burr-combs, and, of course, it would be impossible to slide the cover with bridges built to the top of the frames and to the cover. With the right kind of top-bars and the right bee-space and right spacing, you do not need to have burr-combs. But you say you want them for the bees to climb up on. Call upon those who do not have burr-combs, and ask them whether they get any less honey than some of those who do. I have investigated this matter quite thoroughly, and I do not believe that burr-combs make any difference one way or the other.

I join hands with you in regard to the growth of basswoods. You know that Doolittle, on page 223, seemed to question my statement that basswood from old stumps would grow large enough in ten years to make basswood lumber. If trees will make such growth in Wisconsin and Ohio, I feel sure they would do so in York State, where the basswoods grow equally thrifty, or even more so. Young trees set out, or growing from seed, will not begin to make such a growth.

The communication by F. A. Salisbury, on rendering wax by steam and acid, was designed for foundation-makers, and those who have a large quantity of wax to refine. The articles in Gleanings can not always hit all classes. For instance, those on wintering are of no interest to those in the South; and those in regard to making foundation are of no value to those who buy the article. Those about extracted honey are of no particular moment to those who produce the product in the comb.

After all, it is not a very difficult matter to produce a jet of steam. Take an ordinary square tin can, and have your tinner attach to it a tin pipe, and let the same communicate with a barrel near the stove. I have tried a five-gallon tin boiler on the stove, and find that it will generate quite a pressure of steam. In fact, it will heat hot a coil of pipes in my bath-room; but the probabilities are that the wax-press and the ordinary methods of rendering wax will answer perfectly well for those who have only a hundred pounds or so.] E. R. R.

[Now, I too want to say a word about sliding a flat cover on the hive. This thing was talked of by patent-right venders more than twenty years ago; and when the hives were *new*, say during the first season, the whole thing worked beautifully. Just visit the same apiary, however, say three years later, then how do the sliding covers work, with every thing covered with wax and propolis—covers and hives, perhaps, warped and twisted? Why, it worked exactly as friend France has said; and I confess that my experience with such arrangements was such that I began to feel bitter and sarcastic toward any one who *talked* about such an arrangement. Now comes the point that makes this difference in testimony. Of late, an *eight-frame* hive is getting to be fashionable. The cover is narrower and lighter than any thing we have had heretofore. Another thing, these boys have gone and banished, or pretty *nearly* banished, the burr-combs and bits of wax that used to daub the covers, tops of the frames, and every thing else. If the hives are made nice and accurate, the bee-spaces just right, and kept so, I begin to have faith that the careful bee-keeper may *keep* his covers and the tops of his frames so clean that he can, even after five years of use, slide the covers on without killing a bee—at least, I hope so. But there will have to be a big reform, I tell you, in a good many apiaries. How many are there who have hives that have been in use for five years, where it is practical to slide the cover on without killing or rolling up bees? Raise your hands, please.

Friend F., I want to congratulate you on your keen, sharp observation and common sense in having exploded that old humbug about feeding bees a chicken. How stupid we have been all these years! Now, is it not possible, that, after the mice had worked in the wheat, the bees also used the bran? The strong moral is, that mice should *never* have access to a hive of bees at all; and stores of sugar syrup are probably cheaper and safer than *wheat*, or *chickens* either.] A. I. R.

PROTECTION VS. NO PROTECTION.

A VALUABLE EXPERIENCE.

Friend Root:—In the spring of 1890 I concluded to test thoroughly the advantage of spring protection for single-walled hives. My bee-yard is laid out in three circles of 50 feet diameter, with a smaller circle within the large ones. The hive-stands holding two hives each, are placed around these circles, 16 on the outer circle, 8 in the inside smaller one. and all facing outward. This is the most satisfactory arrangement I have ever tried, as it gives a distinct individuality to each stand. In setting out the bees in the spring. I selected one of these circles and filled the 24 stands with 48 of my best swarms as nearly equal in quality as possible. I then took lath and made 12 handsome outside cases large enough to set over two hives, with four-inch space on all sides for packing, and six inches on top. I placed one of these cases on every other stand, leaving one half of the hives unprotected. The cases were then filled neatly with excelsior sawdust from the section machine. There were double bottom-boards, and bottom protection to the packed hives. The cases were made in four pieces, so that, by tacking four small finishing nails, one in each corner, the whole case could be knocked down in a moment, and laid away in the flat when not in use; and when the 12 stands were packed in their neat cases, and securely covered with a waterproof roof, I said to myself, "Well, this is just splendid." The 24 other hives were left entirely unprotected, except that each hive was covered with a shallow rim three inches deep, with building-paper nailed on one side for a bottom. Each of these shallow boxes was filled with sawdust. A square of burlap was spread over each hive, the boxes set on these, and covered with a good roof. The spring was excedingly cold and late—just such a one as would give spring protection its best chance to prove its value. I then gave watchful care to all alike, and awaited results with great interest. I resolved at the start that I would let all those bees swarm naturally, and then keep strict account of the time of swarming as well as the honey produced by each class of swarms. They all did swarm somewhat late, as the season was the poorest for honey in all my 45 years' experience.

I will not lengthen this article by giving details of the results of this experiment. It is sufficient to say, that, while the cost of material for making the cases was only 25 cents each, and the work of making them was not very great, yet the increased result was not great enough to warrant this small outlay. I shall try the same experiment with some new ones again this year, and again note results. But my present impressions are, that plain hives, cellar wintering, with spring protection in the shape of warm bottom-boards, and warm covers for the top of the hives, are the thing. The bottom is where the cold enters, and the top is where the heat escapes. Both of these points should be carefully protected. My observation has led me to fear that the danger of enticing the bees to leave their warmly packed hives on unsuitable cold days, and perishing in the cold winds, will counterbalance all the good they will do.

BARNETT TAYLOR.

Forestville, Minn., March 23.

[Look here, B. Taylor. You have given us the result of a very valuable experiment just now; but as you prepared your bees, I am sure they all wintered pretty well; for, in fact, both those that were chaff-packed and those that were not, were in very good good shape for winter. You have omitted to say to our readers that you have them in these shallow half-depth frames; but the fact is, in those shallow brood-chambers, with a good warm bottom-board, and your chaff packing on top, you really have a pretty good chaff hive; and I should not wonder that, with such good protection for both top and bottom, and then allowing the sun to strike directly on the sides of the hives whenever it shines, we shall have an arrangement pretty nearly as good as a regular chaff hive.]

BEE-ESCAPES.

THEIR REQUISITES, USES, AND ADVANTAGES.

During the season now rapidly approaching, many bee-keepers will use the new bee-escapes who have never tried them before. The horizontal escape has passed the experimental stage, and is an accomplished fact; and of its uses and advantages there is no longer any doubt. When I invented the horizontal escape I discovered a *system* rather than any particular form of escape; and when I look over the many catalogues now advertising the "Dibbern" (or horizontal) bee-escapes I often wonder what they are really like. There seems to be a general disposition to simplify and cheapen every thing used in the apiary, and the bee-escape is no exception. Indeed, I expect to greatly simplify it myself the coming season; but past experience has taught me that it is entirely safe to "go slow" in the matter. The pear-shaped escape between metal sheets was entirely successful last year, and I shall make no radical changes till something better, simpler, and cheaper has been fully tested.

I fully believe this to be a great invention, and I want all bee-keepers to have the advantages that it secures; and all are free to make, or buy them where they please; my only concern is, that escapes sent out under my name should be rightly made, and give good satisfaction. With this idea in view, it seems to me it would be well at the present time to give a few of the requisites of a perfect bee-escape.

The first thing required is the escape itself; and it should be so made that it will fit into a board without any projections, and no empty boxes or supers should be required

The next thing is the escape-board, to cut the bees in the super off from the main hive. This should be made of boards not more than half an inch thick, and should be provided with bee-spaces, so that, when it is placed under the super, there will be a bee-space on both sides. The escape should be removable from the board, so that a piece of board can be substituted for the escape when desired. There must be neither brood nor queen in the super, or the escape will not clear it entirely of bees. If a wood-zinc honey-board is used, there will be no trouble on this point. The escape should be made with not too many or too large openings, as the bees are no fools, and readily find their way back through them where there is a fair chance. The escape should also be so placed that there will be no more than a bee-space under it, for the bees to cluster in, for I have learned that, where they can cluster on the cone, they are much more apt to find their way back through it. I have also found that bees can not cluster and hang on to a piece of smooth tin as they do on a wire-cloth cone. If cones are made of wire cloth I would place them on the upper side of the board, with a piece of tin, with small holes punched in it, for the bees to pass out, for the lower side. This is a form of escape I shall experiment with this season. I have many other experiments in view on this line, having no less than a dozen forms of escapes ready to try as soon as there is any chance to test them.

I do not see that there can be any doubt as to the advantages of the bee-escape. It makes it not only easier and pleasanter for the apiarist, but irritates the bees much less than any other method. The escape-board can be slipped under the super in less than a minute, and the bees will escape into the super or hive below, so gradually and peacefully that they do not seem to know what has happened. Cases can be placed over the escapes, and in a few hours the honey can be carried away without disturbing the bees from their work in the least.

The escape is particularly useful in the management of out-apiaries. Last fall, when I got ready to remove what honey there was in the supers at my out-apiary, I found that robbing was "just fearful," as there was no honey coming in; and as I had neither shop nor honey-house there, I hardly see how I could have managed without the bee-escape. I was digging a "bee-cave" at the time; and as I had many other things to look after when out, I had to make good use of my time. When I got out there in the morning I would place these escapes under as many supers as I could haul in my light wagon, and then go about my regular work. When I got ready to go home I would load up my honey, with scarcely a single bee to bother. Once I placed the escape-board under a super that had a small knot-hole in it, that had escaped my attention. A few hours after, I heard the shrill note of the robber, and soon found that the bees were robbing through this knot-hole, there being no longer any bees there to defend it. I fully believe that the escape will prove as valuable for extracted as for comb honey. What we want is to get the "hang" of the proper management. Last year some of our California friends objected, on account of the honey becoming too cold if left over night on hives over the escapes. But, why not put the escapes on in the morning, and at intervals during the day, so that there would be a succession of supers that the bees had just vacated? The sun, which I believe nearly always shines there, would certainly keep them warm enough. Of course, the bee-escape presupposes a super of some kind; and such bee-keepers as remove their honey in single wide frames or sections, like Doolittle, will not find much use for them. It is not strange that all bee-keepers do not take readily to the bee-escape. When we remember that we are not at all agreed as to the advantages of comb foundation, the extractor, and many other things, it is not to be wondered at. All the same, the bee-escape has "come to stay," and many who are now shaking their heads will "come into the agency" by and by.

There is yet another use for the bee-escape besides removing the surplus, that is, in hiving swarms, that promises good results. Last year I tried a sort of combination Heddon-Tinker bee-escape system, that pleased me greatly. I simply hived the swarm on the old stand and removed the partly filled super to it from the old hive. I then put on the escape-board, with escape in place, and the old hive on top of that, giving them a small entrance of their own. I would leave it there for seven days, during which time bees were constantly escaping to the new colony. On the seventh day the old hive was removed to a new stand, and a hive-cover laid on the escape-board, still leaving the small entrance for the returning bees to enter the bee-space under the cover, and escape to the new colony below. To my notion this works much better than the Heddon system, as you are not required to shift the hives every day, and having them standing around in all sorts of awkward positions. Then, too, the bees from the old hive are never at a loss to know where to go, and the old hive is so reduced in bees that the chances of any further swarming are very small. Perhaps there are yet other uses for the bee-escape. Time only can tell.

Milan, Ill., April 1. C. H. DIBBERN.

[Years ago, neighbor Dean and myself rode 20 miles to see a house-apiary all complete and in running order. The thing seemed to work very well, with the exception of the difficulty of taking honey from the bees. During that whole twenty-mile ride we two talked the plan over, with the view of getting the honey away from the bees, without shaking or brushing them off. My neighbor thought it might possibly be done by waiting until cold weather drove the bees out of the supers. He said he didn't believe it could be managed profitably in any other way. I presume such a thing as a bee-escape was at that time used to some extent; but we did not think of it, or did not know one could be made to do the work that they are now doing. Who knows but that bee-escapes may finally revive house-apiaries? I suggest in the A B C book, that one might have a hive of bees in one corner of the pantry, letting them go out through the wall of the house. Then the good wife can take a section of honey right out of the hive, and put it on the table, provided she can get it without *getting the bees also*. Can't a bee-escape be arranged so as to accomplish this?]

RAMBLE NO. 40.

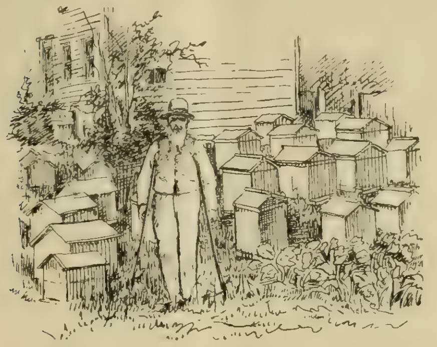
BEE-STINGS AND RHEUMATISM.

While upon my travels I have found many people afflicted with the various phases of rheumatism; and many of the cases that have come under my observation have really been of such a nature as to call out all of my sympathy. Rheumatism that will draw the limbs out of shape, making great knots on the muscles and joints, and inflicting constant and torturing pains, and rendering the patient as helpless as a child, are cases that we can not think of but with sorrow; and in their presence the joke about bee-stings as a cure for rheumatism would not be spoken; for nothing but the divine hand of love could ever make those limbs straight.

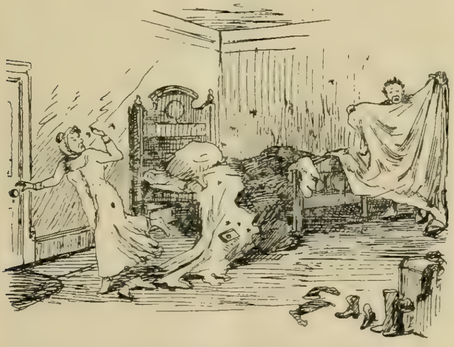
One of these rheumatic cases, who had enough, but not of the severest kind, has been known to the Rambler for several years.

I will, with the aid of the camera, introduce you to Mr. John I. Finch and his apiary in North Greenwich, N. Y. Mr. Finch is a blacksmith by trade, and for many years wielded the hammer industriously in the little shop by the roadside. But rheumatism gradually slackened the blows upon the anvil, and active work was suspended. His attention was thereafter directed to bees, and he now has about thirty colonies, which he thinks is about enough for a man to care for who is obliged to get around to all of his work upon crutches.

Mr. F. has had his ups and downs in the bee-business, having the usual yields and the usual successes and losses in wintering, and, on the whole, for the number of colonies and the disadvantages under which he labors, he has been quite successful. His colonies are run for extracted honey, and, with the exception of a few in chaff hives, they are wintered in the cellar. Though Mr. Finch has manipulated bees for several years, and has been stung an immense number of times, his rheumatism shows no sign of abatement. He had heard so much about the cure of rheumatism by the sting remedy that he has been careful to watch the effect. A few stings have no effect, except the usual smarting and pain; but a large number, in his case, caused nausea, which is not an uncommon feeling with those having no rheumatism. Mr. F. said that the sting of a single white-faced hornet is more effective than a dozen bee-stings, and he attributed it to the depth to which it is plunged, and thinks that *Apis dorsata*, or some bee with a sting that would penetrate half an inch into the flesh would possibly effect a cure. A bee-sting, he thought, might cure a local rheumatic pain, but his case was over too much surface to be thus affected.

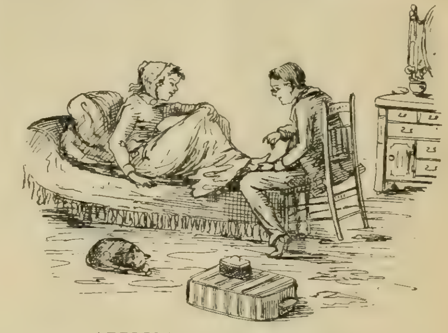


JOHN I. FINCH AND HIS APIARY.



BEE-STINGS AND RHEUMATISM; THEIR APPLICATION AT BED-TIME.

After studying Bro. Finch's case, several others came to mind. A friend was greatly troubled with local rheumatism under the shoulder-blade; but after keeping bees a few years the rheumatism disappeared entirely; and, though the stings were never applied directly to the spot, he sang the praises of bee-stings at all times and on all occasions, claiming that it was only necessary to get the poison into the circulation. Our neighbor's wife, hearing of this remarkable cure, sent to the Rambler for bees in midwinter. Remonstrances against disturbing the bees at this time were of no avail; and seeing it was a case of life or death, the bees were procured and placed in a cage, and directions given to apply one at a time upon retiring. As usual, directions were not followed, and the whole dozen were let loose at once. From accounts received from the family next day, I make the following sketch; and if not literally true, it must approach it, from the nature of the elements employed. The next day she sent for Warner's Safe Cure.



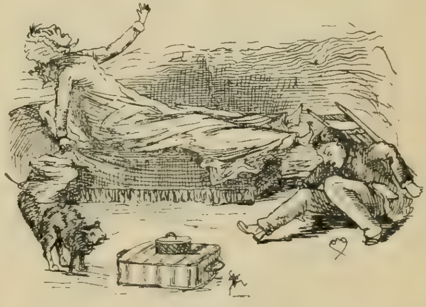
APPLICATION OF BEE-STING.

Another case reported is where a lady who was afflicted with rheumatism in the foot. She had read Jno. Nebel & Son's advertisement in relation to their rheumatism bees, and, having nothing else to think about, a neighboring bee-keeper was sent for, and anxious inquiries were made about the qualities of the Nebel bees over others for the cure of rheumatism. The neighbor argued that his bees were just as powerful as Nebel's; "And," said he, "a sting is a sting, whether in Mexico or Canada, or on High Hill, Mo.; and to prove it I will run over and get a few bees and cure your rheumatism."

The bees were produced; and the patient, being nervous at the approach of the test, timidly asked the neighbor whether the sting of a bee hurt much.

"Oh, no!" said he jocosely; "just a little smart, and all is over. Just keep calm. My bees are just as good as Nebel's."

The application was made, and the result, as the sketch will show, was highly satisfactory to all parties concerned, and has not ceased to be the talk of the entire neighborhood, even unto this day.



RESULT.

I am happy to see, however, that Bros. Nebel have dropped the rheumatic attachment to their advertisement this spring, and it is fortunate they did: for it stirred up a terrible rumpus among the nervous rheumatics; and, as far as learned, but little good has been accomplished, and the cure of rheumatism by the application of bee-stings is a skeptical point with the

RAMBLER.

[But, friend R., why didn't you tell us whether the bee-sting cured the woman's rheumatism or not? The picture tells us all about how your neighbor got piled up in a heap; but after things were restored to rights, the cat soothed, and the bees had got out of the room, was the rheumatic ankle any better, and did she look happy and thankful, just as she does when the application was being made? It is true, you say, in a sort of general way, in your concluding sentence, that you are skeptical in regard to the whole matter, and may be that is intended to answer the question.]

CHIPS FROM THE FEB. 1st NUMBER.

BY WOODCHOPPER.

R. M. Reynolds is right. Queens will lay in supers just as soon with 2-inch sections as with 1¼. I have tried both.

Bait sections (page 83) may prevent A. C. Tyrrel's from swarming, but they don't have any effect that way on mine.

Tell Rambler to go ahead and develop the best bee (see page 83), and the rest of us will be ready to help reap the results.

Yes, Quinby did invent tin combs, but the bees would not use them. They were not ready for metallic caskets then. Are they yet?

Dr. Miller, why are bees better broodless in February? Nature sets queens to laying shortly after Jan. 1st, sometimes sooner. Doesn't she know what's right?

WIDTH OF TOP-BARS.

You are right about the width of your top-bars, but I would space an eighth further apart. I have used thousands of them, and they go in and out much better.

EXTRACTED HONEY FROM DARK COMBS.

Dark combs do affect the color of the honey, friend Andrews (see page 98), if it remains in them long; and if bee-bread is stored in them it will make the honey rank.

LEATHER APRONS.

Tell Emma Wilson to make aprons of leather, as a blacksmith does; and it would look all right for E. R. too; and light calfskin makes the best glove. It must be smooth, or bees will sting through it.

SHINGLES FOR HIVE-ROOFS.

These are much the best of any thing I ever tried, costing less than any other good roof, and making a neat job. They will last 20 years or more, according to quality. Tin lasts well; but it gets so hot if the sun shines on it that it makes a regular furnace of the surplus arrangements under it.

OUT OF THE BUSINESS.

J. T. Fletcher, page 97, is liable, with some others, to find himself out of the business some fine spring morning, as I have seen a number of others do. When we have a really severe winter, the chaff hives will winter bees, and the outer cases will prove failures. The last three winters have been no real test.

HONEY FROM KEGS OR BARRELS.

I never saw any first-class honey come out of a keg or barrel if it had been there any length of time. It is much better in tin cans. Perhaps the New Yorkers prefer their honey half soured, which it is pretty sure to be in wooden packages. I have several times bought honey in kegs and barrels, but I never got any that was really fine.

CLOSED-END AND HOFFMAN FRAMES.

I used closed-end frames 15 years, and I like them first rate; but I discarded them for hanging frames because they were not good to winter in on summer stands. I did not use them inside of a hive, but let them form the ends of the hive. There was no trouble about propolis; and for interchanging they can not be surpassed, if they are made right so as to space 1½ inches apart.

PAINTED MUSLIN VS. SHINGLES.

I tried painted muslin on a few hives some years ago, but it was not worth the cost. It lasted about six years. So far as the muslin is concerned, it doesn't cost very much; but, oh my! as Uncle Amos sometimes exclaims, what a lot of paint and time it took! I had to paint about six times before I got them water-proof; and a gallon of paint would cover only about two hives—just the roof.

CLOSE SPACING, ETC.

Say, friend Scothan (page 100), do you charge your good yield of surplus and heavy hives for winter to close spacing? or did the clover and basswood pan out better than ours? and that nice field of buckwheat, didn't it help to make the hive heavy in the fall? If the close spacing did it, we'll space up tight after this, for we got no surplus, and some of the bees didn't have any thing to winter on, and we had to double up and feed, etc.

SELLING SECTIONS BY THE PIECE.

Friend Whitlock, that is a sharp trick of the grocer, buying by the pound and selling by the piece, and so make two profits; and are we as producers going to allow it? First, we have to buy more sections, put in foundation, then it is more work to crate them; and when we are done, what are we but partakers of other men's sins, for most of them sell them for pounds? That little shortage in weight is the reason they don't want to weigh them. Isn't it time to call a halt before we all get to selling short-weight goods?

SPRING DWINDLING, AND THE CAUSE.

I think E. S. Fowler, of Bartlett, O., is partly right about spring dwindling. There is another cause more frequent. It is this: When we have a long cold spell of weather, say two months or more of downright hard freezing, then, unless the bees are in warm hives, their constitutions are used up in the endeavor to keep up the necessary heat in the hive; and if they don't succeed in it they get cold and go into dysentery, which I call "cold-weather dysentery," and very different from that caused by poor honey, but nearly as fatal, as they die off as soon as they begin work in spring, simply being worn out by being obliged to fire up so much in cold weather.

REMEDY FOR BLACK ANTS; HOW TO GET RID OF 'EM.

If they are the large ones, get a cent's worth of tartar emetic and mix about a quarter of it in a little honey (about an ounce or two), and place in their haunts. After they have eaten it you will see no more of them for about three or four months, when they will begin to come back. A second dose has cleared our house for three years. It will not work on the small ants, for they won't eat it; and if the coal tar (page 101) will clean out the small kinds, then with both you can be "ant clear," both in the hives and the house. This recipe came from the *Housekeeper*, Minneapolis, Minn. Don't let the bees eat it, for it may lay them up till the harvest is over.

THE WILEY CANARD.

I should have supposed that our friend Prof. Cook would have known that he might expect to raise a buzz of indignation at a convention of bee-keepers by giving that wiley (liar) a chance to put himself on record against the honey interests again, and then he goes to apologizing for him, and says he has done lots of good in other departments of science. He will never be able to undo the mischief he has done the bee-keepers of America, even if he lives to be 100 years old. The story of the machine-made comb honey is still traveling. Only three months ago I went into a grocery in a neighboring town, and the proprietor said he was selling honey made without the aid of bees; and when I asked him where he got it he said in Cleveland, and of a certain commission man, naming a well-known honey-dealer. He said that said commission man told him that the honey was not bees' honey, but manufactured by machinery; and he took it all in dead earnest, and told his customers the same story, and it took a good deal of talk to get the idea out of his head; and then I could see that, like the tree that is dug up, the small roots were still there, ready to come up again as soon as the weather was favorable.

Now, if this does not find the way into the waste-basket, I may send another basket for the next fire if chips are good kindlings.

Woodchopper.

[Well, well, Mr. Woodchopper, if you can do as well as this every time we hope you will send us more baskets of chips. They are too good for kindling-wood.

Never saw any good honey from kegs and barrels? What were the barrels made of, and what had they previously contained? Cypress kegs, and oaken alcohol-barrels give no taint to the honey—at least, so say some of the large honey-producers.

We are glad to get your testimony in regard to painted muslin; but there are some of the other bee-keepers who say the muslin is good.]

E. R. R.

[And I, friend W., want to say that I really felt glad to find some one with large experience and good sound judgment to so entirely agree with myself on so many points. Let me correct you, however, in saying that bees would not use Quinby's tin combs. They used them right along, and no fault was found with them except expense, that I heard of. It is true, the bees did not winter in them; but, you see, when the boys weighed the hives to see how much honey the hive contained, they forgot about the metal, and did not calculate; therefore, long before winter was over, the bees had lots of tin but not a drop of stores in the tin cells.—My experience with kegs and barrels is exactly like yours; also with painted cloth for covers. Shingles are too heavy and untidy for hive-roofs.]

A. I. R.

THE PROPER TIME TO SPRAY TREES.

BY A FRUIT-GROWER AND BEE-KEEPER; VALUABLE HINTS ON THE SUBJECT.

According to my promise to you on my way home from the Albany convention, I will write an article on the above topic. I thought it would be of most benefit appearing on the 1st or 15th of April, as May is the month in which we do the most of our spraying.

The first thing to learn is the habits of the insects we wish to destroy. Apple-trees are sprayed to destroy the larva of the coddling moth. The moth deposits her eggs in the calyx of the apple, or blossom, from about the falling of bloom until 10 or 15 days after. The larva hatches in a few days, according to the temperature; and, if not killed, it begins to eat its way into the fruit. About three or five days after blossoms fall is the best time to spray, and continue so doing for about 20 days, as often as rain washes off the poison. If, after the first spraying, it should not rain for a week or ten days, you will kill 75 per cent of the larvæ.

The curculio does not attack the plum until the fruit is about the size of peas, which, in ordinary weather, is a week or ten days after the blossoms fall. Spray plums the same as apples; viz., with Paris green, at the rate of 1 lb. to 200 gallons of water, applied with a good spraying-pump. Some use the same proportion of London purple on apples; but it should be avoided on all *stone fruits*, as it is liable to injure the foliage.

You will see by the above that it is time and material thrown away to spray trees while in bloom; for, nine times out of ten, the rain will wash away the poison before the larva is on hand to eat it. I have my doubts whether bees can be poisoned in this way. I "don't know" that it will *not* kill them. With such a delicately constructed tool for collecting nectar, I think it highly probable that they can gather what they want, and reject the poison. Paris green is insoluble in water, and I think the bees can easily leave it in the blossoms, and take the nectar. I have heard of several cases of bees being poisoned in that way, but was not satisfied with the proof that spraying caused their death. My apiary is mostly under large apple-trees, and I always spray, just as though they were not there. The poisoned water will stand on hives, alighting-boards, and grass; and if the day is a warm one, I always see a great many bees sipping it, and have never noticed any bad results. I have imprisoned bees loaded with such water, for 24 hours, and they came out lively. Those writing upon the subject should not say, "Don't spray while in bloom, for it will poison the bees," but strive to satisfy people that, by so doing, they will throw time and money away; and if you do satisfy them to that effect, why, that ends it. In other words, show them, not how it will injure *other* people, but themselves. I live in one of the greatest fruit-growing counties of the United States, and I know of but one man who sprays his trees while in bloom, and he wants to kill the moth that lays the eggs, instead of the larva from the egg. The mature moth does not eat either the foliage or the fruit, and I hope we shall make him see it soon. I have yet to find an entomologist who recommends spraying trees while in bloom. We have arrived at a point in fruit culture where we have got to use insecticides and fungicides intelligently, or give up the business. As bee-keepers we must lose no opportunity to educate fruit-growers in regard to their own interests, and by so doing further our own. I raise both fruit and honey, and never lose an opportunity of speaking a good word for both pursuits, and showing their dependence on each other when at our farmers' club meetings, agricultural institutes, county fairs, or elsewhere.

G. H. Ashby,
Sec'y Orleans Co. Farmers' Club.

Albion, N. Y.

HOME-MADE HIVES.

HOW TO MAKE THEM CHEAPLY.

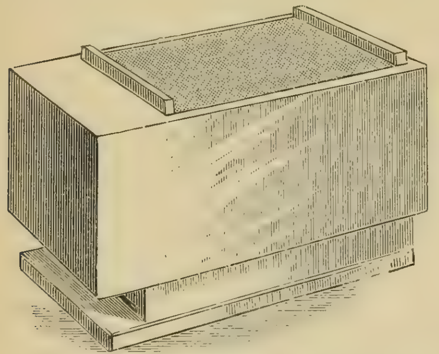
I think I saw a notice somewhere in Gleanings of a dovetailed hive some one was offering cheap made of ⅜ lumber. The editor was afraid it would be "too thin," but I rather like the idea. Being made dovetailed, it would be strong enough; but its strongest point would be its cheapness, for I believe the time has gone by when bee-keepers can afford expensive hives. But if the price were the same. I should still prefer them made of thin lumber, say ½ or ⅝ inch. Flat covers of ⅜ and ½ inch lumber are much the best, as they are lighter. and keep their place better, as I have proved in actual use for several years; and this brings me to my subject of

HOME-MADE HIVES.

I make hive bodies, bottoms, and covers, instead of buying, preferring to put money into foundation, as good straight worker combs and sections filled *full* of foundation, I believe, pay every time. I also buy my brood-frames. sections, and supers. The materials are boot and shoe boxes, generally ½ and ⅝ inch in thickness. The best boot-boxes are 3½ feet long, and will cut two lengths of hive stuff, while shoe-boxes are short and will cut but one length, leaving short pieces that will work in crosswise in making bottoms. The boxes can be bought here for 10 and 5 cents apiece for long and short ones. The short boxes, if in good condition, will each make a one-story hive with bottom and cover, and the long ones a two-story hive for extracting. The ends of the boxes being thicker, they are used for ends of hives, rabbeting them for the hanging frame. A rabbet-plane can be bought for 50 or 60 cents; and some little strips can be nailed on so it will cut just the right width, and stop cutting at the right depth. Of course, the stuff

NEEDS NO PLANING

unless you want to plane off the stencil-marks. For my part I rather like to see them; for the slight trace of the letters showing through the paint reminds me of *money saved;* and I take pride in saying to visitors, "See that hive? I made it myself, and it cost me only *five cents* out, except the paint." When I first made them, six or seven years ago, I made them like the Heddon-Langstroth, with tight bottom; but I now make them with Dr. Miller's reversible bottom, so as to have upper and lower stories interchangeable.



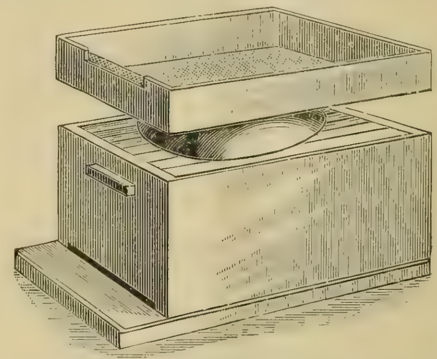
A HOME-MADE BEE-HIVE, MADE OF SHOE-BOXES.

THE COVERS.

These are made of the sides of boxes which are matched. They are made long enough so they can be reversed, and the bees propolize the joints so they will shed rain. They make a light handy hive for carrying in and out if wintered in the cellar, but I have wintered in them on summer stands with excellent results since 1884, by the following mode of packing for winter: The bees are supplied with six frames containing their stores, with a dummy or division-board on each side. Corncobs are laid crosswise over the frames, instead of the Hill device; but latterly I use the large-sized wooden butter-dishes turned bottom up over the cluster, and I like them much better. A piece of burlap is spread over, and then a thing I will call

THE HILL TRAY

is put on (see cut). I learned the use of this from Mr. Hill, of Mount Healthy, Ohio, when visiting at his home in the fall of 1884. It is simply a light rim five or six inches high, with burlap tacked on for a bottom. He explained that it would fit up in the corners better than a cushion. He used them on old-style Langstroth hives. I find them cheaper, too, as they take less burlap.



SHOE-BOX HIVE, WITH BUTTER-TRAY AND TRAY WITH BURLAP BOTTOM FOR WINTERING.

After covering the bees with this tray about two-thirds full of chaff, a five-cent shoe-box is turned over the whole. It comes down over the hive usually two-thirds or three-fourths the way down, and so protects the hive a good deal. They are always longer than the hive, so they are put up close behind, and left sticking over in front. This gives a chance for ventilation through the hole covered with screen in the front end of the tray. It will be seen that this makes but little additional expense in preparing the bees for winter, and but little packing material is used. One thing I will mention that I consider essential to success in wintering outdoors in this latitude, and that is—*old combs.*

Oberlin. O., Feb. 21. Chalon Fowls.

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[Hives made of thin stuff had a run some 20 or 25 years ago. They were discarded because they were so liable to injury, and most of us thought they were not as efficient protection against the frost as hives made of inch lumber. Some 12 or 15 years ago I revived the idea again with what I called the "hoop" hive. These had covers ⅜ inch thick. But every little while somebody would sit down on these thin covers, and smash them in. They also troubled me by getting split and coming to pieces. I decided that they were not as good weather protection, either in winter or summer. I have made some very pretty bee-hives from boxes bought at dry-goods stores; but unless one has much spare time to pull them to pieces and get the nails out, and considerable skill and ingenuity in making things work together, I decided it did not pay. Now, in contrast with the above, I have several times thought that thin hives, sitting right in the sun, work better, especially in the spring of the year, than thick ones. Such hives will certainly answer very well, for many of us have tried them when we could not get any better.]

BIOGRAPHICAL.

JAMES A. GREEN.

> Seest thou a man diligent in his [bee-keeping] business? He shall stand before kings; he shall not stand before mean men.—PROV. 22:29.

James A. Green, the subject of this sketch, while still in his teens decided to make the road leading through the apiary his royal road to fortune. Giving to his chosen profession the close study and hard work always necessary to make a success of any profession, bringing to it the stimulus of a decided taste for bee-keeping, and a natural aptitude for its details, he is likely, before he is much older, to find "plenty of room at the top."

Mr. Green was born about thirty years ago in the little town of Dayton, on the banks of Fox River, in Illinois. While he has built up an extensive business and quite a national reputation among bee-keepers, this town always has been and continues to be his home.

JAMES A. GREEN.

His practical experience with bees began in 1878, during the absence of his father, who was at that time a bee-keeper on a small scale. Swarming-time came on, the colonies needed attention, and James and his mother stepped promptly into the breach. All went well with the experiment; and when Mr. Green returned from Colorado the boy had found his vocation.

He began with twenty swarms in old-fashioned box hives. He found it hard to gather information about his new business, and, for lack of this knowledge, carried it on for some time in a primitive way, which the modern bee-keeper would consider very antiquated indeed. But James was a very determined boy, and he did not believe there was any need of standing still or going back because the way ahead looked rather difficult. So he diligently read on, gathering from books and magazines some knowledge, and a little insight into the ways of bees. At last, in the A B C of Bee Culture he found the solution of his difficulties, and the best and strongest of foundations for a novice in bee-keeping to build upon. The A B C of Bee Culture very wisely assumes that the beginner knows as little about his future work as the child does of written language. So he, like the child, is required to begin with the alphabet, and when he has gained a thorough mastery of this he is also a long way on the road to the mastery of the bee-profession.

James learned his A B C's thoroughly, and henceforth his upward path became comparatively easy. "Progressive and determined" make a very good combination, and this boy had both qualities. Gradually the old-fashioned methods and appliances gave place to new, improved, and scientific ones. The ingenious hand of the master of the bee-yard supplemented his tools with handy contrivances of his own, and the apiary grew and grew until now, 1891, it numbers 300 colonies, and the sale of its product goes to many of the great cities of the country.

More than this, while Mr. Green is still, and always will be, a student, his knowledge of bees and their culture is so wide, accurate, and practical, that he takes rank among the best authorities in these matters. His name was recently sent in by the secretary of the Smithsonian Institute for admission to one of the great scientific societies of France—a high honor for so young a man who has been only eleven years in the work.

Back of every good man is a good mother. Back of nearly every successful man is a sympathetic mother or wife. Mr. Green is not an exception to this rule. From their babyhood, Mrs. Green took an interest in all that her boys cared to do — an interest no less wise and thoughtful than it was devoted. Each boy felt that mother was his particular partner, giving an intelligent appreciation to all the details of his boyish plans for the future, and sympathizing with all his ups and downs. When Frank, the chemist, hid his beloved bottles on the high shelf of the dining-room cupboard, mother did not scold, nor ever ask to have them taken away. She only told Frank to be very careful how near he placed them to the eatables. When Kent, the bookworm, buried his face in the dear volume, and shut out all the world beside, she found out what he was reading, and, just as much as her busy life would allow, read with him. When Jimmy began to work among the bees, she armed herself with veil and gloves, and went with him. And she has read so intelligently the books and magazines concerning the honey-bee—she has studied so carefully its habits—that she is very good authority on the way of making it profitable to its owner. So that it is certainly true that Mr. Green owes much of his present standing in the profession, and his success financially, to his best friend, his excellent mother.

Mr. Green is not a man of one idea solely, nor does he believe in moving in the rut of one's own business. As an extensive and successful bee-keeper, he has been honored by his brethren with the vice-presidency of the Northwestern Bee-keepers' Association, and it is needless to say that he fills the office well.

A justice of the peace in his native town, his office gives him the power to bind in one two loving hearts.

A graduate of the Ottawa High School, he has supplemented an excellent education by a course of careful and valuable reading. A lover of, and also a judge of first-class poetry, Mr. Green has many an apt quotation at his fingers' ends, and he gives them on suitable occasions with point and grace.

This love of choice and thoughtful reading led him very naturally into the Chautauqua Literary and Scientific Circle, of which he is a very faithful and conscientious member. He belongs to the class of 1892, and has for some years been the president of the Ottawa Laurels (C. L. S. C.). Mr. Green is an enthusiastic amateur photographer, delighting in flash-light pictures, in which branch of photographic art he has made some good hits, and is marching onward to perfection.

Best of all, he is a quiet, earnest, working, every-day Christian; a member of the Congregational church in Ottawa, and president of the Young People's Society of Christian Endeavor, he is letting his "light shine before men."

Take him all in all, and viewed through the medium of other eyes more impartial than those of a cousin, James A. Green, besides being a live, progressive bee-keeper, is undoubtedly a very nice young man. LYDIA STRAWN.

Ottawa, Ill., March 18.

[My good friend, we feel greatly obliged to you for all these things you tell us about our valued contributor James A. Green. While much of it is new, we long ago decided here in the office that friend Green was a young man of no ordinary merit and acquirements. In fact, he now stands among the chosen few whose copy goes straight to the printers without reading. But, my good friend, will you pardon us if, while reading the above excellent encomium, our thoughts would keep wandering from the subject of the discourse to the discourser herself, especially when you speak with such touching pathos of the part the *mother* plays in this great machinery of human affairs and human events? It was *my* mother who first took me by the hand and led me to the garden on the hillside, and taught me to look for the beets and radishes that were just peeping out of the ground. Then she led my thoughts to Him who holds all these things in the hollow of his hand. She also led me to the bee-hives, little dreaming, perhaps (like many another mother), of what the outcome would be. If it were anybody else than friend Green, such kind words might be apt to make him proud; but then, you know, he is a working Christian. Who can tell all that is compassed and comprehended in these two simple words, "working Christian"? May God bless the words of this short sketch; and may they prove an inspiration, not only to the *boys* and *young men*, but to the *mothers* of our land, young and old.]

POISONOUS SNAKES, ETC.

SOME "SNAKE STORIES" BY PROF. COOK.

I am reminded by subscribers for GLEANINGS that I have not yet written the promised article on poisonous snakes, and so I will defer it no longer, especially as it is a subject of unusual interest to all.

As is well known, we had, thanks to GLEANINGS and its readers, several rattlesnakes last summer in confinement and under observation, and with them we had two or three copperheads and one highland moccasin, or cottonmouth. These snakes are very interesting, as being justly the most dreaded enemies of man. Their concealment, readiness to bite, and the terrible nature of a wound from their fangs, make them peculiarly interesting.

All of our poisonous snakes have broad, flat, triangular heads, and two curved movable fangs in the upper jaw. These are either hollow or grooved, and connect with a poisonous sac in which is stored the venomous liquid which is so much dreaded—justly dreaded—as it is a deadly poison. This is said to be safe if taken into the stomach; but once introduced into the blood it brings severe pain, paralysis, and death. When a venomous snake strikes, it straightens its fangs at the same time; and the same muscles that raise the head and extend the fangs also compress the poison-sac, and extrude the poison. It is said by some authors that the snake may strike without extruding the venom. I do not know that this is not so; but I do know that they often throw drops of poison when they strike, even though they may not bite at all. Last summer our moccasin would strike at a stick, and we often saw the venom fly, and also saw drops of poison on the stick.

In the form of the head and structure of the biting apparatus our poisonous snakes are like the same of the Orient. But all *our* poisonous snakes have a deep pit on the outside of the head, between the eyes and the nasal opening or openings of the nose. This pit is absent in the venomous snakes of the Old World. Our poisonous snakes, then, are easily known by their broad, flat, triangular heads, movable poison-fangs, and the pits between the eyes and opening of the nose. These are the only ready means to distinguish the copperheads and moccasins, while the several species of rattlesnakes are further marked by the conspicuous rattles that adorn their tails. These rattles are simply overlapping ring-like scales, which are connected some like the swivel link of a log-chain. The rapid vibration of the snake's tail causes these scales to move on each other, and produce the peculiar whirr which gives the common name to these venomous reptiles. It is a very curious and interesting fact, that the copperhead will vibrate its tail against a board, stick, or box, so that one could scarcely distinguish it from a real rattlesnake. We noted that specially last summer.

The only poisonous snake we have in Michigan is the massasauga, or prairie rattlesnake. This is short, heavy, dark in color, and beautiful neither in color, form, nor habit. Usually this snake, like the other venomous species, coils when it strikes, but not always. It will strike if circumstances prevent its coiling. The young of our massasauga are born alive—that is, the eggs hatch within the mother. Such snakes are called ovoviviparous or viviparous. I think all of the venomous snakes are like these in their reproduction. The young massasaugas, when very small, will run, as I have witnessed, when danger threatens, into the mouth of their mother. It hardly need be said that they seek a very safe place.

Rattlesnakes are grouped in genera from the peculiar arrangements of the plates on the back of the head. Thus our massasauga belongs to the genus *Candisona*. It is *C. tergemina*. There are two other species of this genus in the southwest of our country.

The rattlesnakes of the East and South are longer, slimmer, and handsomer than the massasauga. The large eastern one is *Crotalus horridus*, and is aptly named. They vary from yellow to black, and are marked with spots, so that often they are quite handsome. They may grow to be four feet long. There are several species of this genus in the South, Southwest, and West. One, *C. adamanteus*, or diamond rattlesnake, is very handsome. We had several from the Gulf States last season, and they were beautiful. The color is yellowish brown, and they are ornamented with thirty or more dark-brown diamond-shaped spots. They are slim and graceful, and are objects of great beauty and interest as they strike—that is, if removed at a safe distance from the observer. One of these bit a cat in my laboratory last summer.

The poor cat seemed to be in terrible pain immediately, and in less than two minutes her hind limb—the one bitten—was so paralyzed that she dragged her hind parts. She was in such terrible pain that we gave her chloroform and placed her beyond suffering.

The copperhead is also a handsome snake. It is light reddish brown, spotted with darker brown, and has a copper-colored head. It seems less brainy than the rattlesnakes, for it would strike, or strike at, a stick, and throw its poison, while the rattlesnakes could not be fooled in any such way. They would attack only real game. The moccasin, like the copperhead, was easily tantalized to strike at a stick. It is darker, and not so handsome as the copperhead and diamond rattlesnake.

From our experiment with the cat I can not but believe that these snakes are fearfully venomous. Were I bitten, I would adopt radical measures to effect a cure. If on the hand, finger, arm, or leg, I would tie a string very tightly above the place, and try to keep the poison from entering the circulation. If I could get a hot iron, or some acid, at once, I would cauterize the wound; but it would not do to wait any. Sucking the poison out would always be in order. This is safe, for, as we have seen, no harm would come, even if some of the venom were swallowed, though this would be unnecessary. The advice to drink whisky freely is so stoutly urged that I have only to say that it *may* do good.

THE CHAIN, OR KING SNAKE.

I am indebted to one of your Georgia subscribers, Mr. J. F. McCord, Covington, Ga., for a beautiful chain-snake. This, one of the commonest snakes of the South, is also called king-snake, and Mr. McCord refers to it as the pilot-snake. The scientific name of this handsome snake is *Ophibolus getulus*. We see it belongs to the same genus as the common milk-snake of both North and South (*Ophibolus triangulus*), which it much resembles in form. It is also about the same size, from 25 to 40 inches. This milk-snake is often called house-snake, as it is not infrequently found in cellars and outhouses. Both of these snakes are entirely harmless.

The chain-snake is jet-black, and ringed with narrow yellow lines which fork below, inclosing black spots. Below it is white, spotted with black. The intense black, lined with yellow, gives a remarkably pleasing combination, which, together with the slim elongated form, makes this one of our very handsomest snakes. The negroes are said to regard this snake with respect, and even awe. They claim that it rules the reptile world, and will even attack and subdue the terrible rattler. This is doubtless why they call it the king-snake. The chain-snake feeds on lizards, mice, and other snakes. Like our milk-snakes, this is entirely harmless. It can not do harm, should it attempt to bite; and the probability is, it would never essay to bite. The many teeth, projecting from the jaw and somarine bones, are too weak to do more than hold on to its victim as it attempts to swallow its live and lively food whole. These teeth point back, and so make every struggle of its prey help on the operation of swallowing. I am very glad of this specimen, as I always am to receive specimens from the South. I will always gladly pay express, and shall be very grateful for new specimens.
A. J. COOK.

Agricultural College, Mich.

[Some little time ago one of our correspondents asked to have his GLEANINGS discontinued because it was too "snaky." We think, however, that no one will complain in this line after having read the wonderful facts which Prof. Cook gives us. They are all the more interesting to me because I know they are *true;* but if it were almost anybody else than our careful friend, I might be a little suspicious—especially in regard to that startling statement that the young seek refuge in their mother's mouth. Now, I am just Yankee enough to want to ask a lot of questions. Do not snakes breathe? If so, how are those young chaps going to breathe when the mother has swallowed them? and does she swallow half a dozen or so at once? After the danger is past, I suppose they turn around and crawl out again. Do they hold their breath all this time? I have heard this statement before, but I did not believe it. Our proofreader suggests, however, that you only say they find refuge in their mother's *mouth*. But, dear friend Cook, do you mean to say that the mouth is large enough to give place to a brood of young snakes? The story was told me that she swallowed them to give them a place of safety.]

THE NOISE OF BEES IN THE CELLAR.

DR. MILLER DISCUSSES THE CAUSES.

I wish I could clearly interpret what the bees mean by the noise they make in the cellar. Do they make the same kind of noise at all times? Does a noise *always* mean that something is not quite right? I have thought that, when bees are making a noise because too cold, they make a kind of sharp, rattling noise, different from the noise made when they are warm. Perhaps others can tell better about it. This rattling noise must be made with the wings, for bees have a true voice, aside from the noise made by the wings. Cheshire says the wings make the buzzing, and the humming is made by the interrupted air passing through the spiracles, or breathing-tubes. This latter is the true voice. Landois recognizes a third tone in the flight sound—that made by the vibrations of the abdominal rings. Differently from what might be supposed, the most acute and intense noise is that made by the true vocal apparatus. These three tones are all made at the same time during flight; and, if I understand the matter rightly, they are inseparably connected with the muscular effort made in flying. We all know very well the difference there is in some of the sounds made by a bee on the wing as it leaves the hive or returns heavily laden, or flies scolding about our heads.

Now, does a bee, or can a bee, make the same variety of sounds in the hive as on the wing? When a colony of bees in the cellar are as quiet and still as if dead, and are disturbed, they always seem to me to make a kind of sleepy sound. If a colony is too cold, it makes a noise. Does the noise make it warm? Hardly. On a cold day a man slaps his arms around him to warm himself. The exercise warms him, and the noise he makes is a necessary accompaniment. Isn't it just the same with the bees? But if the bees get *too* warm they make a noise. Surely, exercise doesn't cool them, does it? If you get too warm, do you go to jumping around or slapping your arms together to cool off? Well, you may use a certain kind of exercise to cool off, and that is by plying a fan—precisely what the bees do, only I suspect that, generally, the only feeling they recognize is a desire for purer air. Dzierzon intimates that the main reason why bees are noisy in cellars is because of impure air. If cold, do they ever get *very* noisy? But when warm, they do get very noisy.

It is generally believed, and I think it is correct, that, in summer, bees keep the air in their hives pure by ventilating, and it is the same, I suppose, in the cellar. That ventilation is always accompanied by a certain amount of sound, is it not, whether in summer or winter? If the bees recognize the presence of impure air in the hive, the natural thing is to ventilate. If the air in the hive is exactly the same temperature as that outside, and there is nothing to create any motion of the air either in or out of the hive, then, as the air becomes impure by breathing, the bees must necessarily purify it by ventilating. If, however, the air outside the hive is enough colder than that within, the greater weight of the outside air will make it displace that within, so that, if it be just enough colder, there will be no need of action on the part of the bees, either to get up heat or to purify the air. That particular point of temperature is supposed to be somewhere in the neighborhood of 45°, possibly a little above it. This is on the supposition that the air outside the hive is pure.

Now, suppose a colony gets to work ventilating, and the air they introduce is just as impure as that driven out. The effort to change the air will become more violent, until the whole hive is in a roar; and, if the cold does not force them to stay in the hive, they will collect on the outside, just where their instinct tells them they may find the purest air. Just this state of things I have seen many a time on warm, muggy days toward spring. On the evening of such a day, I have opened wide the cellar-door, so as to let in better air. Did that quiet the bees? So far from it, the noise increased so much that the roaring could be heard at a distance of several rods from the cellar. Why? Perhaps the bees had understood that a stock of fresh air had been brought into the cellar, and that now it was worth while to work harder than ever to get some of it while it was going. At any rate, they seemed to go to work with a will; but when they had filled their hives with the precious breathing material, they stopped ventilating; and by the next morning the cellar was almost as quiet as death, and not a bee would stir from the hives, though the full light of day streamed in.

So far, then, we seem to have noise of two kinds—that made when the bees are warming up, and that made when they are ventilating. The noise of cold bees seems a little in the cellar like the sound of a soft wind blowing through the pine-trees. Are there any different sounds?

Are we to understand that, when a colony is somewhat noisy, something is not quite right? I don't know for sure, but I think not. Is it not necessary for a colony, after such a length of time, to make a stir and take a lunch, and, possibly, make other changes? Did you ever notice them rousing up periodically, and then quieting down again? Unless you are quite close to the colony you may not hear it, and it makes hardly a perceptible difference in the murmur of the cellar. So I would say you may find single colonies noisy, without any harm; but if all the cellar is noisy, something needs attention. Now, am I right in all this? Can any one tell us more about it? C. C. Miller.

Marengo, Ill., Mar. 6.

[This noise in a bee-cellar has always been somewhat of a mystery to me, and I believe your suggestions on the cause are good. There is one thing I feel pretty sure of—that is, if the cellar is above 50 degrees in temperature, and the bees are noisy, by lowering the temperature down to 40 they will become quiet. The only means of lowering the temperature with me has been to open the windows at night. That did two things—let in pure air, and the lower temperature created a circulation. Another thing I have noticed: If the temperature goes down too low, bees are apt to be noisy again. By closing the windows next morning, they would be quiet. As you say, the noise in one case is caused by a lack of ventilation, and in the other the cause was a lack of warmth. Perhaps some one else will argue that the temperature was not right. I have not been troubled much with extreme temperature in my cellar, but I have allowed it to become low in order to see what the effects would be. I have noticed one other thing: That one or two hybrid colonies that we had in the cellar would be making a roar when all the rest of the bees were quiet. I accounted for this on the ground that they were so exceedingly sensitive to a slight disturbance that they immediately entered their protest. These same bees, if outdoors, would have done it in a rather more forcible way.]
E. R. R.

OBJECTIONS TO FIXED DISTANCES.

C. A. HATCH RECOUNTS THEM.

While we are hearing so much about the advantages of closed-end frames and fixed distances, would it not be well to look at some of the disadvantages of them, and the advantages of hanging, or, rather, swinging frames?

Is rapidity of handling the only thing to be considered? and is it really so that the closed-end, or any frame having a device for keeping them a certain distance from each other, can be handled faster than common L. frames? It is said that one can take three frames at one time, and therefore can get along, presumably, three times as fast. Can not three frames of any kind (if one wants to lift so much at once) be taken at one time by putting your fingers between the frames to keep them apart. I have done it many times; but two heavy frames at once are about all the average bee-man will care to lift, and follow it up for any length of time.

If frames having end-pieces wide enough to fill completely the space, like the Quinby and new Heddon hive, I have found it necessary to loosen the frame at both ends, and sometimes they are so glued with propolis that they are fixed indeed; and in the Heddon hive I have had to spoil the first frame in order to get at the rest. Perhaps this may be owing to the frames filling the hive endwise; but suppose a space is left there, what a fine place for moth to hide, or for more propolis to be stowed! When bees bring in propolis and fill every crack and cranny with chunks as large as hazelnuts, and sometimes larger, we have to beware of the chances for storage left around the hive. "But," says one, "we are going to have the frames wedged so closely that no crack for propolis is left between." Can any form of wedge and follower bring them closer than a screw which was used in my case? and what is to prevent that wedge from being stuck solid with propolis? and can you get frames made so square and true that they will *all* come up chock against each neighbor? If you can, you have found a better workman than we have, and we have had some good work done. What is the matter with the round-headed nails recommended by Dr. Miller?

You must always put the frame in the hive the same way it came out, which makes an extra item to watch, and sometimes it is a real advantage to change ends with a frame. The nails are also always catching on the hive or on other frames, and bothering, especially if one wants to handle them rapidly, and that is just the point we are after. We had several hundred frames fixed this way some years ago, but used them only one year, when we removed every one, at no little expense and labor. The nails are also much in the way about using the uncapping-knife. This last point would condemn them for all extracted-honey men.

The Hoffman frame, which has closed ends only part way down, as I understand it, is perhaps open to less objections; but there are the same ones in regard to being stuck with propolis. What a fine place the V point between two frames is for it! Still, if the frames are wedged close, and fit snug, the part in contact is so short that not much effort will be needed to separate them. It also has the end projection to lift and handle it by, which with me is quite important. If we are to have frames fixing the distances automatically, let us try to get a good one, adopting the Jacksonian motto, "Be sure you are right, then go ahead."

Remember what a boom was made only two or three years ago on reversing frames, and then see how many are in use to-day. Are we not too much like a flock of sheep—when one leader goes, all make a rush, regardless of what we require. C. A. HATCH.

Ithaca, Wis., Mar. 26.

[I am glad of your article, friend H.; and believe me when I say I am just as much pleased to have the other side discussed as to have the one toward which I am leaning; the more so, because I know you are a successful bee-keeper, and candid and fair in your judgments.

I do not know that it is so in every one's hands, that the closed-end or Hoffman frame can be handled faster than loose frames. I know I saw Hoffman and Elwood handle their respective fixed frames faster than the average man will the loose frame. But as Mr. Hoffman in the next issue will touch upon this point and Mr. Elwood in the present issue, I will let them speak for themselves.

Hanging frames with nails for spacers, and such like contrivances, would be an intolerable nuisance, and I do not wonder that you discarded them.

To handle the closed-end or Hoffman rapidly, they should be picked up in pairs, and sometimes in trios. If they are full of honey, two will be enough to lift. If empty or nearly so, in the spring, then you can handle as many as you can span with your fingers. I know you can handle loose frames after a fashion in pairs, but not with the same facility that the Hoffman frames can be thus handled. I have tried both ways.

Those of us who have defended fixed distances did not intend to convey the impression that fixed frames could be handled in speed in proportion to the number of frames handled at once, as you seem to take it. We meant that the handling in pairs and in trios *assisted*.

For rapid manipulation there is another very important consideration. For closed-end or Hoffman frames a hive with a movable side, or, better, one with a loose follower, should be used and then you get lateral movement in its perfection.

Your experience with the Heddon closed-end frame is different from ours, so that we shall have to account for that on the score of locality.

What you say regarding closed-end frames in close-fitting cases may be a serious objection in many localities; and if so, we should be warned of it in advance; but this does not apply at all to the Hoffman frames or closed-end frames, used as Quinby advised.

And now about the propolis between the cracks. We have had no very great trouble on that score. So far, compression has obviated the trouble. But perhaps I should remark right here, that the Italians do not deposit propolis like hybrids or blacks. But in spite of all you say, everywhere in New York I saw every thing smeared with propolis; and if there is any place in the United States where propolis is deposited freely, it is in York State; Elwood says he never saw any more propolis than in his locality, and yet neither he nor Hoffman experiences any trouble from it with their frames. You say, with fixed distances you must always put the frame in the hive in the same way it came out. On this point I just won't agree. This may be true, however, if you take old hanging frames and make them into fixed distances with nails. But take frames that have always been fixed (that is, those that have never been subjected to the hit-and-miss spacing), and have always been handled properly, I am pretty sure there will be no trouble. Notice what Mr. Hoffman says in the following article. Mr. Elwood has told me the same thing.

There was a boom made in reversing, and it rather died out; but I am pretty sure that it is going to come up when the proper appliances permit of its more easy operation. Reversing with ordinary loose frames is impracticable; but with fixed frames inversion is not only more feasible but practicable; and, as friend Dayton said in the last issue, and as Mr. Chalon Fowls and others have insisted, I believe that more brood can be secured in a certain number of frames by reversing than by not reversing. If this is true—and our experience in the apiary inclines me to this opinion—then here is a point that we can not very well overlook. Fixed distances are going to make reversing possible where before it was impracticable (because the whole hive can easily be turned upside down and the combs won't topple over either), and there is nothing that makes such beautiful combs as reversing. I am very glad to refer you to an article from Mr. Hoffman, which appears next; and I would also advise you to read another from the pen of Mr. Elwood.] E. R. R.

THE HOFFMAN FRAME DEFENDED.

HINTS ON ITS MANIPULATION BY THE INVENTOR HIMSELF—MR. JULIUS HOFFMAN.

In GLEANINGS of Mar. 15th, Mr. W. W. Somerford is condemning closed-end frames in quite a severe and positive way. I have but very little time to write, and perhaps still less inclination and ability to do so; but Mr. Somerford's sweeping assertion, and the apparent tendency in his article to warn beginners against the Hoffman frame, induces me to make a few remarks in your valuable paper—unless GLEANINGS has closed its pages to any further testimony on the Hoffman side, as that gentleman calls it.

I will begin by saying that I never made the slightest attempt, in word or writing, to persuade or induce anybody to adopt or use my style of frame until quite recently. When the now so-called Hoffman frame was brought to notice in GLEANINGS I thought it best to state how I make and use the suspended, partly closed-end frame, and tried to explain what I thought their advantages.

What induced the editors of GLEANINGS to bring this frame before the public, I do not know; but I was much surprised, like Mr. Somerford, that my style of frame had worked its way into so many apiaries, even to most of the distant States.

I can assure Mr. Somerford, too, that I know of a good many beginners who started with the Hoffman frame, and are quite successful with it. I also know of many good practical honey-raisers who have worked with the common loose or swinging frame, and use the Hoffman now exclusively. If Mr. Somerford has used the Hoffman frame as made by me, and described in Gleanings, will he please tell the readers of Gleanings in how many colonies and for how many years he has used them?

If he is of his friend Woodward's type, who has sometimes to leave the close-fitting frames apart a little, on account of irregular combs, and can not interchange them very well because his combs differ so, and as he can not keep his hives level, the combs are out of true. If he is that kind of bee-keeper it will, I think, be better for him not to handle a spaced or close-fitting frame; or, better yet, work the old box hive. We have, in the working season, from eight to ten thousand frames to handle and in use, and any of them will fit in any colony between any two combs. Is Mr. Somerford not aware of the fact that some of our most practical and extensive honey-raisers have used a close-fitting frame for a great many years? Please ask them whether the frame they use is abominable and unbearable to them.

I have no doubt that these successful men can handle their close-fitting frames quite as fast and conveniently as Mr. Somerford his swinging or loose frame. Has Mr. Somerford ever moved several hundred colonies to different localities and back again every season? If so, will he please tell us how he would fix his swinging frames to load and unload to take his bees to different localities over rough and hilly roads, or take his filled combs home for extracting from the different apiaries as we have to do?

My hired man (I often have a green or inexperienced man to do it) can, and has often done all the moving of the bees to five and six different yards in spring and fall, without any assistance.

If I used a loose swinging frame it would require such an amount of time, labor, and care, to move the bees every year, that I should not want to do it at all. It would be "abominable and unbearable" business, and I would give it up.

DOES THE HOFFMAN FRAME KILL BEES? PROPOLIS; DOES IT HINDER OR ASSIST MANIPULATION?

In regard to bee-glue, I will say that we have no trouble from it with our frames and in our climate, when the frames fit as well as they ought to, and are always pushed together well. I, indeed, prefer the gluing together of the frames by the bees to a loose shifting frame, as I can lift and carry the hives more handily. I hardly believe that Mr. Somerford gave the Hoffman frame a fair trial; for if he had, he would not say it kills bees.

In examining or working a colony of bees, the frames ought not to be pressed quite close together until the work with that hive is done, when all the frames of the hive should be pressed together firmly in a lot. If a little smoke is used before, to drive the bees down where the frames are not close fitting, no bees will be killed. Any person at all fitted for the bee-business will soon handle such frames without killing bees.

In conclusion I wish to say, that, if a bee-keeper can not become expert enough to handle a close-fitting frame well, he should not discourage others from trying them, because I am certain there are many in our great country who are progressive and clever enough to make a success in honey-raising by using improved appliances or fixtures. Julius Hoffman.

Canajoharie, N. Y., Mar. 23.

[I will say to our readers that Mr. Hoffman is modest and retiring in disposition, and one who is but little inclined to push the merits of any of his devices. He has no interest in bee-supplies, and, in fact, never had, that I know of. What he says above, I am sure was influenced only by his free-hearted disposition to do the bee-keeping world good. He has used extensively the loose hanging frame, and I think he can prove every statement made, just as he did to me when I visited his place some six months ago. His success with 600 colonies, and his big crops of honey, secured largely by his own individual labor, means something.

The reason why we thought best to introduce his frame was because, here and there all over the country (when we were agitating fixed distances) bee-keepers were asking us to look into its merits. So many of these came in, and they argued with so much show of reason, that this was largely influential in inducing me to make a visit east, to see Mr. Hoffman handle his frames; and the result was, that I was so thoroughly convinced of their merits I knew we should be doing bee-keepers a good turn by offering them to the public.

J. H. Nellis advertised Hoffman frames something like ten years ago; and after his journal ceased publication in 1882, comparatively nothing more was said in regard to them; but it seems they have during these years been silently working their way throughout the country among bee-keepers, solely on their merits. Supply-dealers may boom a poor article, and get it generally introduced; but when an article, without any booming for ten years, works its own way into favor, it must have intrinsic value, or it would die out.

I believe the Hoffman frame is better adapted to beginners than any other frame I know of. They can not help getting their combs spaced right; and I know by experience that beginners seldom if ever space loose frames properly, and then they write to know why bees bulge their combs so badly, or why their combs are so crooked, etc.

In the next issue Mr. Hoffman will show how to handle the Hoffman frame, by an illustrated article.] E. R. R.

THE HETHERINGTON QUINBY HIVE.

MR. ELWOOD TELLS HOW TO HANDLE IT, AND EXPLAINS ONE OF THE SECRETS OF ITS RAPID MANIPULATION.

The junior editor of Gleanings has canvassed the subject so exhaustively as to leave little to be said on fixed distances with closed-end frames. I was glad of an opportunity of showing the workings of our hive to a practical bee-keeper familiar with the swinging-frame hive in its various modifications; for I had surmised, as Mr. Root admits, that my statements as to rapid and safe work were, by many, disbelieved. However, I am pleased to know that my advocacy for these many years of fixed distances and closed-end frames, while counted a serious blunder, was attributed to nothing worse than ignorance.

THE TWO REQUIREMENTS OF A GOOD BEE-HIVE.

A good bee-hive must fill two requirements reasonably well to be worthy of that name. 1. It must be a good home for the bees; 2. It must in addition be so constructed as to be convenient to perform the various operations required by modern bee-keeping. The first of these requirements is filled very well by a good box or straw hive. Bees will store as much honey in these hives as in any, and in the North they will winter and spring as well in a straw hive as in any other. They do not, however, fill the second requirement; and to meet this the movable-frame hive was invented.

WHY QUINBY INVENTED THE CLOSED-END FRAME.

Mr. Quinby observed, soon after the introduction of the Langstroth hive, that bees did not winter as well in them as in box hives, on account of the open frame; and he remedied it by making his frames closed end. Dzierzon also discovered that the open frame infringed upon the welfare of the bees, and says: "These passages are unnatural, and they carry off the necessary heat and moisture from the brood-nest and winter quarters of the bees, so that colonies generally winter badly." Abbott, late editor of the *British Bee Journal*, says: "There is nothing more unnatural in hive arrangement than the absurd practice of making or leaving spaces round the frame ends." Bees usually close up the space between the combs and frame ends or side walls of hives, as far down as honey extends, and undoubtedly our frames should be closed as far down as the instinct of the bees teaches them to close this space, which is often to the very bottom of the frame. This close space saves much heat, and enables weak colonies to build up in the spring that in an open-end frame would have no chance whatever.

Our division-boards, or panels, as we call them, are close fitting at top, bottom, and ends. They are always at hand, thus making it very convenient to contract the brood-nest to suit the requirements of the smallest colony, or to enlarge it to suit the largest colony. With a quilt over the top of the frames, every space between the combs is made so close that it is easily kept warm, and really gives our hive nearly all the advantages of the box hive, with the additional one of combs removable at pleasure.

MOVING BEES ON CLOSED-END FRAMES.

Our hive is portable. No cumbersome rack is needed in moving bees, for two hives sit side by side in the bottom of the wagon, and one hive piles on top of another, without need of sticks between. In preparing a colony for moving, we shove out the entrance slide in the bottom of the hive, and put in its place a wire-cloth slide to give the necessary ventilation. Then two screws are put in—one through each side of the bottom-board into the edge of the hive. An average man will consume about a hundred minutes from the time he reaches a yard until he drives out with a load of thirty-three swarms. The two screws mentioned fasten the bottom on so securely that we have had no accidents on the road serious enough to warrant unhitching the team from the wagon. Our bees are usually drawn over rough, stony, and hilly roads, but we have no queens or bees killed from frames flopping together, nor do we have any combs broken. It is a long time since I saw a comb that had been broken on the road.* When our bees were housed in November, two men in the cellar and three outside with a team put them in at the rate of two colonies per minute. With the swinging frame they could hardly have handled them so rapidly, saying nothing about their safety.

Not only is our hive movable, but our frames are also movable. In walking up to a hive, one motion lifts the hive proper from its bottom-board, and places it at the side of the exposed frames, where it forms a seat of convenient height. The iron roof is nailed to the hive, and, of course, always goes with it. Only in the hottest weather is there a shade-board to be removed. Another motion with one hand removes the quilt covering the frames, and the other hand blows a puff or two of smoke from Jumbo, while the first removes the cord holding the frames more tightly together. You are then ready for business. If you are looking for the quantity of brood in the hive, you can remove the frames in pairs; for they are easily and rapidly handled in this way, and one side of a comb is usually a duplicate of the other side. The bottom-board is large enough so that the frames removed can be hooked on the bottom near you, and far enough away from the others to have ample room to get a good look at the next comb (see Fig. 1).* This is a valuable feature of the hive, as you can have always a good place for combs without setting them upon the ground where you are in danger of losing queens and damaging brood, besides other annoyances. The hive-bottom as we use it for comb honey is 18 inches across, while the maximum number of frames used for this purpose would occupy only 11½ inches. In removing frames, a small knife† will readily loosen one end, when they can be unhooked from the bottom. Quite often a knife is not necessary, but it is advisable to carry one.

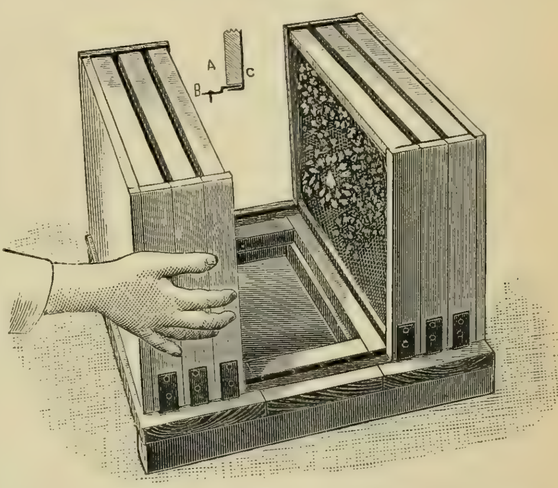

FIG. 1. QUINBY CLOSED-END FRAMES MANIPULATED.

On looking over combs it is best to set them together on the bottom, see Fig. 1, so that bees can neither get in nor out between the ends of the frames. This is best for various reasons.

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*Mr. Root has told you something about our roads, which were at their best when he was here. Perhaps they were not very smooth then, as, on coming down one steep hill, I caught him holding fast to the seat with both hands. This was not when our bees were objecting to having their pictures taken, for his hands were busy then, and I remember that *I* was *on foot*.

*Mr. Elwood several times showed me the queen by simply dividing the hive in *perpendicular* halves, as shown in the engraving. Often this was all that was necessary, and the hive was closed up. Many times he handled and examined into hives without removing a single frame. This is why he often can find a queen quicker than he could in a loose-frame hive in a box.—E. R. R.

†A good penknife will open any hive, and for nearly fifteen years I carried and used exclusively the same light jack-knife, breaking it only in taking off clamps of honey.

In cool weather it saves heat, also annoyance from robbers; and when looking for queens the bees do not bunch up when the combs are the proper distance apart. Also when we have all the combs looked over, they are ready to have the cord and quilt put on them after a shove (with both hands as per Fig. 1) slides them all to the center of the bottom-board, ready for the hive. P. H. ELWOOD.

Starkville, N. Y., Mar. 15.

Continued next issue.

[In the next issue Mr. Elwood will explain why the closed-end frame as Mr. Quinby recommended it does not kill bees. This will also be illustrated with suitable engravings. Mr. Elwood has given very truthfully the two requirements of a bee-hive—one suited to the bees, and the other to the bee-keeper. We all agree on the first requirement, but we do not all agree as to what constitutes the second one. I will say that the engraving, Fig. 1, was taken from a photograph, and is very nearly accurate. The manner in which the frame is hooked to the strap iron is not entirely correct; but this will be illustrated in the next issue, and shown right.] E. R. R.

CLOSED-END FRAMES.

MRS. AXTELL DISCUSSES SOME OF THEIR DISADVANTAGES.

Mr. Axtell has given you his views about the standing closed-end Quinby frames and hive, which features of the hive I like too; but there are some things about it that even I do not like. In the first place, one must be very careful to push the frames up tight each time; and even if they are pushed up tight, the bees will stick on a little bee-glue along the crack that was made when pried apart. Then next time a little more will be put on, and the next time a little more, so that they will unavoidably get further and further apart—that is, spaced further apart unless the apiarist will at least once a year scrape between those combs.

My plan has been to get around once in two years myself, at least, and take down the front of the hive, and, with an old butcher-knife, I pry each comb apart and scrape between the two, then scrape off the front board of the hive, with a scraper and the front end of the brood-frames (I scrape the front end before being pried apart). Then I go to the back end of the hive and take down the board and scrape off the back end of the frames before prying them apart; then I pry them apart and scrape between the combs; then scrape off the board before putting it up.

I have always made it a point, about once in two years, to have the edges between the combs where they come together scraped, and the front board once in one year; and the back board, which is often taken down, scraped oftener. Now, if that scraping is neglected, in a few years an immense amount of wax and propolis would be put in, so that the combs would be spaced much too far apart; and the frames, by the addition of the propolis, would become so long we could not shut up the hive. For that reason, year before last I strained my arms drawing the corners close together so they could be clamped. We are about to fix all our hives ⅛ or $\frac{1}{16}$ of an inch longer than they were needed when new.

Always, in the fall, we have a large number of brood-frames not needed in the hives, and sometimes they are filled with honey, and often not filled; but I generally take pains to have them all cleaned of propolis between the edges where they come together, as it is very much easier cleaned out of the hive than in the hive, where the bees are constantly poking their heads out in my way, and I have to use the smoker to keep them back.

Now, another serious objection to the standing closed-end frames is especially serious in the hands of our helpers or beginners. At the front ends, if the bees run, they will generally run down at the front end, and get just where we want to set the frame. I can scarcely ever sit and look at one of my helpers replace the combs in the hive, because they will kill so many bees at that front end on the bottom, so there is danger of killing the queen also. Mr. Axtell does not, nor do I, kill many bees in that way; but we are careful not to get them to running, and I know better how to prevent getting them down there; but if they do get down too bad, then we loosen the front board a little until the combs are returned; but in that case the frame must be caught by the hoop-iron catch at the bottom, or they will have to be watched pretty carefully, or they will tumble over.

I have thought, if we were making all new frames why not have the lower end of the front bar a mere point? but then the bees would, a few of them, get between the end of the frame and the front board unless there was a bee-space between the frame and front board.

I think we like the hive and frame we have always used better than any other, because we better know how to handle it. But there are advantages in this style of hive, I am quite certain, which we can not get in the hive with a hanging frame not having closed ends.

Roseville, Ill. MRS. L. C. AXTELL.

[I do not know that I clearly understand just what kind of a closed-end arrangement you use. If I mistake not it is the original Quinby without the iron hooks. You know that Capt. Hetherington and P. H. Elwood use the Quinby system, slightly modified. As they use it, I do not think they are troubled much with the killing of bees in the way you speak of.

I know that propolis will build up between the uprights or closed ends; but, if I am correct, this can be largely obviated by compression. This is so with the Heddon shallow closed-end frames. Although we have used one of his hives some three or four years, there is scarcely more propolis between the uprights than there was the first three months it was used. The compression keeps it out. I shall be glad to have this subject discussed, particularly by Mr. Elwood and Mr. Hoffman, and by others who have had experience "along this line" as Doolittle says.] E. R. R.

WAX SECRETION.

PROF. COOK STILL THINKS WAX IS SECRETED ONLY WHEN NEEDED.

Friend Root, it is pleasant to read the replies in the last number of the *American Bee Journal*, to the query regarding wax secretion. Nearly all think bees do not secrete except when it is necessary in the economy of the hive.

In the March 15th number of GLEANINGS you remember I went a little further. I urged that bees secrete only when the wax is needed, as a rule, and gave, as the best hypothesis explaining this that quiet was the probable explanation. I should add, quiet under full nutrition. That is, the bee is functionally active, eats much, but exercises very little.

In your foot-note you remark that you formerly thought as I do; but you add, that abundant wax scales, produced while feeding sugar syrup—so abundant that they fall to the bottom of the hive—makes you skeptical. I have noticed the same thing that you speak of, and it the rather confirmed my view. If we feed syrup in quantities, the bees are nervously stimulated, and I think the functional activity is by no means slight; yet, how little they exercise! There is no occasion for much exercise. With a chance they will build comb very rapidly. Supply them a full set of combs, and they have no use for the scales, and the latter lie thick on the bottom-board. This strengthens me in the view that wax is secreted only under those conditions which usually prevail when wax is needed. That is, the bees are functionally active under high nervous tension, and yet are not exercising much, either from choice or because, as in case of feeding, there is little or no occasion for much exercise. The fact that they do not secrete wax except when it is needed, I feel certain is, as a rule, well grounded. If any one can give a better solution of this problem than is afforded in the theory of physical quiet in conjunction with a stimulated condition, I should like to hear it. A. J. Cook.

Agricultural College, Mich.

E. FRANCE GIVES US SOME SHARP FACTS THAT WE CAN NOT WELL GET AROUND.

In March 15th Gleanings, page 212, Prof. Cook gives us an excellent article on wax secretion, and A. I. Root makes some good remarks. Now, I don't intend to criticise either of you; in fact, I agree with both of you. But I have a theory of my own as to when and why bees secrete wax. They secrete wax whenever they have more honey than they have combs in which to store it away. At such times they have to hold their honey in their sacs—they have no other place to put it. The wax is secreted as a consequence of holding the honey in their sacs. Now, this is the whole sum and substance of wax secretion. Give a new swarm of bees a full set of empty combs, and will they secrete wax? No, not much; but give them an empty hive when honey is plentiful, but no combs, then the secretion goes on rapidly. Why? Because the bees' sacs are full of honey, and they have to hold it until combs are built to store it away.

Another case: Hive a swarm in an empty hive when there is a dearth of honey. When the bees have to eat all the honey they can get to keep alive, will they secrete wax? Not any. They have no honey in their sacs. I hived a swarm last September—a good-sized one—and they lived until cold weather, but never built an inch of comb—then starved. Why did they not secrete wax? No honey.

I have seen it stated in the bee-papers that only young bees secrete wax. Now, I think that is a mistake. I have no doubt that young bees do secrete wax; but that they never secrete wax after they are old enough to go to the fields and gather honey is not so. I know that bees will secrete wax and build combs until they are six weeks old. Can I prove it? Yes. Several years ago a bee-man near here hived a swarm of bees in a frame hive that I sold him. Just 21 days after, they had filled the hive full of combs, and a set of boxes with honey, and swarmed. That day the swarm was put into another hive, and they filled that hive also, in three weeks. Now, don't you see that this last swarm of bees were at least a part of the first swarm? or in other words, every bee in the last swarm was one of the first swarm, and was not less than 21 days old, and they could not get young bees in the second hive in less than 21 days more? So the same lot of bees were secreting wax and building comb for six weeks. I believe that, as long as a bee lives, it can secrete wax and build comb with it, and that old bees can secrete wax as freely as young ones, and that wax is never secreted to any amount unless the bees have to hold their honey for the lack of room to store it away, and they can not secrete wax unless they are holding honey in their sacs. E. France.

Platteville, Wis.

[Friend France, I congratulate you on the point you make in regard to bees secreting wax when they are six weeks old. I never thought of it before, but your argument is unanswerable. A swarm that casts another swarm inside of 21 days must surely send out only old bees. I have been satisfied for years that old bees can secrete wax, nurse brood, or do almost any thing else, on a pinch.] A. I. R.

DOOLITTLE TELLS US WHAT HE THINKS OF MILLIONAIRES, AS WELL AS WAX.

I read with interest Prof. Cook's article on page 212 of Gleanings for March 15, and heartily wish he were correct. He may be so during a time of moderate flow of honey, with no desire on the part of the bees to swarm; but with a good honey-flow, and a disposition on the part of the bees to swarm, I can only think him in error, in the light of past experience. Take his example of the "cow secreting milk when there is a young calf that must have milk;" and instead of proving what he wishes it to, it most surely proves that wax must be wasted when a swarm of bees is hived in a hive fully provided with comb, when we come to apply that example to the bees. The cow secretes milk according to "nature's arranging" before the birth of the calf, so that it may have a supply when it enters into the world; so the bees begin to prepare for their future home some length of time before they leave the parent colony by secreting wax, so that they may be prepared with the needed material when they enter their new hive, which, as a rule, is all "swept and garnished," only as man's hand changes their usual surroundings. If the professor has ever examined a swarm of bees as they hang on a limb, waiting for the scouts to return and report "a future home," and failed to find wax secreted in the wax-pockets, he has found a state of affairs that I never did. With this wax already secreted, what is to become of it when the swarm is hived in a hive already fully furnished, unless it is wasted? That it is not found on the bottom of the hive is no proof that there was no secretion, or that it has not been wasted; for I have repeatedly seen bees leaving the hive with wax scales in their mouth, and once or twice have seen them drop them soon after taking wing, although I believe that the greater part of this waste comes about by an unnecessary thickening of the combs, and a useless daubing of wax about the hive. I have seen the limbs of trees, on which swarms have clustered, plastered over with wax, the secretion was so great; and when swarms have been hived on full sheets of foundation, I have scraped the cells off the foundation, which most would call "foundation drawn out," only to find the foundation in as perfect condition as it was when it was placed in the hive, the bees simply adding their wax to the side walls of the foundation. I may be wrong, but I can see in this only a waste of wax, or a waste of the foundation; have it which way you please. In times of a slow yield of honey, and perhaps I might say at all times, I do not think as much wax would be secreted when the swarm was hived on empty combs as there would be in an empty hive, for the continuous secretion which goes on after the swarm is hived in an empty hive till the hive is filled with comb would be avoided, and thus a part of the secretion would be stopped. It is for this reason that I have advised using only starters in the sections if the hive is filled with combs below, or using only starters in the frames below, if the sections are filled with combs or with foundation. In this way the wax which the bees have already secreted, and that which is in the process of secretion, is saved, hence no waste at any point.

THOSE MILLIONAIRES.

I was taken by surprise at what I found on pages 213 and 214 of the same number of GLEANINGS; and, friend Root, as you took a column and a half to reply to friend Heselton's half-column, and then called a halt, perhaps you will allow me to say a few words for both of you in the column still due Bro. H. With you, I agree that a man is not necessarily wicked because he is in possession of *much* money, nor is he in a wicked calling because he is a lawyer; but if his money comes to him through fraud or dishonest practices, in which his poor neighbors are robbed of the amount he gains, above what he earns, then he can only be classed with sinners, no matter how many charitable institutions he helps or founds; and if he is a lawyer, and lends his influence toward the framing of unjust laws, laws which oppress the widow and the fatherless, then the cries of these "laborers will enter into the ears of the Lord of Sabaoth," and happy will you and I be, friend Root, if we are found in opposition to such practices, and if we lift up our voices and our ballots against a state of things which allows of this oppression; for then we are not partakers in these crimes, even if they do not cease to exist. There are only three ways in which money can be secured: By earning, by charity, and by fraud (theft). When "old Hutch." secured his millions by the wheat corner a few years ago, did he earn a cent of it? No, he stole it; and by his becoming that much richer, those who earned the money which accumulated in his hands were just so much poorer. If he had given all this pile to good institutions, the Lord would not have blessed him for the gift, although he might have blessed the institution. So of railroad wrecking, trusts in oil, sugar, coal, etc., which rob the laborer of his hire, which things are allowed to exist in our land by the votes of the people, votes which they cast ignorantly, by allowing their minds to be drawn aside from the right and real issues of the day by scheming politicians. Then, by our present tariff laws the poor laborer of our country is compelled to give charities to the rich, just in proportion to what he is obliged to consume; and so we see thousands and millions of our people suffering for the actual necessities of life that a few thousands of our people may become rich. John D. Rockefeller is reported to be an eminent Christian gentleman, and yet thousands of the poor seamstresses of our land are spoiling their eyes, and have been for the past years, because they could not earn the wherewith to buy oil enough to have sufficient light to sew during the hours of the night which they were obliged to work to keep soul and body together. Now, Bro. Root, something is wrong somewhere, and it becomes you and me to see that we are on the right side, and that is why I write on this theme. I know a bee-paper is not the proper place for a discussion of politics or religious doctrines; but as you took a column extra on that subject, I thought you would allow the same space to me, if I were not abusive, and I have tried not to be. G. M. DOOLITTLE.

Borodino, N. Y., March 28.

[Friend Doolittle, Prof. Cook will have to answer you in regard to the wax problem; and if I really took a column and a half before, I certainly ought not to occupy any space just now. But we should all be careful to look on both sides of these great national questions, and we should also beware of uncharitable extremes. There is a safe ground, and a right one in all these questions, and we who are striving to follow Christ Jesus ought not to be very far from each other in our opinions.]

THE VALUE OF EMPTY COMBS; A VALUABLE EXPERIMENT, SHOWING THAT BEES SECRETE WAX WHEN COMPELLED TO BUILD COMB.

With Prof. Cook, I greatly doubt whether bees have to secrete wax unless there is a great honey-flow, and no place provided for them to deposit it. A few years ago this same subject was talked up in the bee-journals; and as I had helped some in an apiary for over 20 years, and had read so many different opinions and theories on the secretion of beeswax, I felt very much like making a few observations, and it was not long before an opportunity presented itself. It was a very warm morning in the swarming season. Mr. M. was called from home, and I was left alone to care for the bees. In a short time the swarming-note was sounded, and "the bees had swarmed." We were making use of some drawn-out combs at the time, and I got a hive, filled it with some of them, and hived the bees; then I wiped the sweat from my face, and returned to my labor. This was swarm No. 1.

I had hardly got settled down to work, when "buzz, buzz," and out came another swarm of bees. "Ha, ha!" I said to myself, "now is my time to experiment a little." So I went and got a hive, filled it with empty frames, and hived swarm No. 2, and then awaited results.

The next day I went to look at them. Swarm No. 1 I found very busy at work bringing honey from the field, and depositing it in the combs; and on the alighting-board and bottom of the hive there was quite a quantity of those little wax scales; but it was very difficult to find any scales in the wax-pockets on the bees. Then I went to No. 2 and found there were not more than half as many bees going and coming from the field as there were from No. 1. I very gently raised the cover and looked in, and found the rest of them hanging in festoons to the top-bars, quietly working at their trade of comb-building, while those that came from the field seemed to be bringing honey for them to consume, to produce the wax to build the comb from; and the secretion of wax was very plentiful on the bees, but there was none on the bottom-board nor around the entrance to the hive.

They worked on in this way for a few days, and built comb very fast; then the yield of honey in the field diminished, so they could get but a little; and although they were still inactive, the wax secretion diminished, and comb-building progressed very slowly. Therefore I think consumption causes production; and if circumstances are such that the bees consume a large amount of honey, they they will secrete a large amount of wax. But this is no saving; for, if the honey that they consume to fill the hive or boxes were stored in surplus boxes or comb, it would pay for combs or foundation to fill a number of hives. OBSERVER.

[My good friend, you have given us a most valuable experience. First, it indicates beyond question that a colony will store more honey for the extractor when they have a full set of combs. Sheets of foundation would probably come next to full combs; but empty frames are away behind. Our older readers may remember that I made experiments in just this line nearly twenty years ago. A new swarm, with a full set of empty combs, does, however, secrete quite a little wax. They put it on top of the top-bars, extend out the length of the cells wherever the space will admit of it, and often put little fins around the end-bars. The point of great value to bee-keepers is this: A new swarm, hived on empty frames, will at once—at least the greater part of them—hang idly until the wax scales are secreted; whereas, with full sets of combs, nearly all these bees could go at once to the fields for stores.]

WEST'S CELL-PROTECTOR.

A NEW AND VALUABLE DEVICE.

The cell-protector was worth over $100 to me two years ago in swarming-time, as I requeened over 100 swarms with cells from my choicest stocks, and at the same time stopped swarming where the cells were introduced. My bees wintered well and came out strong the following spring, while others lost very heavily all around me.

I dare not say that it is a positive fact that the method I practiced two years ago will always prevent swarming, but it did with me in four different yards, and it was a swarming year too. The hives that I did not treat that way nearly all swarmed, and in many of them we killed the queen while the swarm was on the wing, and destroyed the cells in the hive and gave them a choice queen-cell in the protector, from a hive that had cast a swarm five or six days before. This is easily done while the bees are on the wing.

This way of requeening a yard of bees costs nothing, and gives you a chance of doing it when swarming-cells are plentiful, and this is the time to do it, because we can get better queens; and by going to a hive that has not swarmed, and especially if for any cause the queen is condemned, kill her and destroy the cells if any are started, and give them a choice cell in the protector at once.

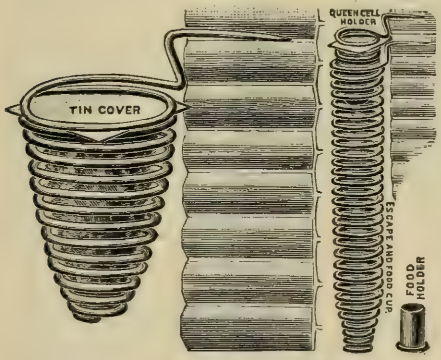


Fig. 1. *Fig. 2.*

N. D. WEST'S SPIRAL-SPRING CELL-PROTECTOR.

If you want to raise any virgin queens, go to a hive that has cast a swarm five or six days previously, cut out carefully all the cells you wish to save; place them in the protectors; lay them in a box of cotton, or have a block with a number of holes to set them in until you are ready to use them. Now, when all cells are cut out, just place the cell, as it is already in the protector, on the side of a comb in the same hive. By pushing the spur of the protector (see Fig. 1) into the comb it will stay there; and with the long queen-cage placed below (see Fig. 2), it, with its spur pushed into the comb, will also stay, and there is queen food in the bottom of this cage, so that, when the queen hatches, she will run down into this cage. In this way you can have a queen-nursery in any hive, and hatch out as many queens as you wish. Now, after the cells are hatched you can make as many nuclei as you have queens, by just taking one frame with adhering bees, and place in an empty hive; place another comb by the side of this; give them one of these virgin queens; close the hive, and so on until the cells are used up, and wait until they lay; then do with them what you please.

HOW TO USE THE CELL-PROTECTOR.

Hold the small end of the protector between the thumb and first and second fingers of the left hand. Hold the queen-cell by the big end in the right hand in the same way. Now you are ready to put the cell in; and as soon as the fingers of the right hand touch the cage, it will shorten up by pushing slightly, so as to fix the point of the cell just through the small end of the protector. Let loose with the right hand, and the coil will spring back and cover the butt end of the cell; then slip the tin cover in between the wire coil, just above the butt end of the cell; then you are ready to put the cell in a hive. Then just spread the combs apart far enough to put your hand in; now push the spur of the protector in the comb where you want it (see Fig. 1). I leave them just below the top-bar. Now place your frames, and you are done. The top of the protector is in plain sight when the hive is open. Care should be used to handle the cells right side up, without a jar. It is a satisfaction to look in a few days and find your cells all whole except where the queen has helped herself out. The bees can not destroy the cell before she hatches, if properly put in; neither will it be destroyed by spreading the frames if you wish to do so. N. D. WEST.

Middleburg, N. Y., Feb. 3.

[Mr. N. D. West is one of those bee-keepers at whose place I stopped in my bicycling tour. He owns some 400 colonies distributed in three yards. Although I made at his place a very brief call of only some fifteen or twenty minutes, I became convinced of the fact, by looking around with his son (the father was absent), that he is one of the bee-keepers who ought to let their light shine a little more. I met him for the first time at the Albany convention, and there he showed me a spiral-spring cell-protector. Several bee-keepers who have tried them said that they were a good thing. I have since been informed that Capt. Hetherington considers them so good that he has ordered 500, and that P. H. Elwood also wants a lot of them, and that both say they are ahead of any thing else they ever saw for a protector. Mr. W. L. Tennant said he would rather do without comb foundation than to do without these protectors. This estimate is perhaps a little strong.

I am well aware that this looks like free advertising; but when so many good bee-keepers assure me it is a good thing, I am glad to give it this notice, particularly as Mr. West charges a very reasonable price for them. As he pays for advertising space elsewhere, he can not be accused of taking advantage of this notice free. We are well aware that the principle of the protectors is old, and that Doolittle has used a *wire-cloth* cone for years, but I believe the idea of using a spiral spring is new. The point of superiority over wire-cloth cone-protectors is, that the spirals adjust themselves to the size of the cell, causing the tin slide shown in the engraving to press down on the top of the cell, so that the end, or point, of the cell is squeezed against the apex of the cone. With the wire-cloth protectors I have known bees to push the cell up, crawl inside of the cone, and gnaw into the side of the cell; but they could not very well do it with Mr. West's spirals.

The point he makes, that the requeening can be done during swarming-time, is a good one, as is also the point that an extra-long cone can be attached to shorter ones, the queen hatched out, and be retained a day or two until a place is found for her. The facility with which these cones can be attached to the combs is another point in their favor.] E. R. R.

EVAPORATING HONEY BY SOLAR HEAT IN FLORIDA.

W. S. HART'S DEVICE, AND HOW HE DOES IT ON A LARGE SCALE; HE THINKS SOLAR EVAPORATED HONEY IS NOT INFERIOR TO THAT RIPENED BY THE BEES.

By request of some of your southern correspondents, backed by your own, I give you a description of my method of curing extracted honey. But first let me say I had a short interview with the editor of *The Florida Farmer and Fruit Grower*. The editor, in commenting on my honey, said, "Not content with the desiccation done by the bees, he reduces it in a sun evaporator, in a large pan under glass, to a consistency so dense that it will keep a long time without candying." The honey shown to editor Powers was cured more than that which I usually send to market. I cured it while testing the evaporator to see what it would do, and to see whether thorough curing with solar heat would darken the color. His description of the honey was a correct one, and shows that there is no reason for uneasiness on that point.

My honey-house is set upon a concrete base, about two feet high, bringing the floor of the lower room below the surface of the ground, and the sills a few inches above ground. Here in this lower room I store extracted honey in barrels. From this room there is a large air-pipe running out at the top of the building, which keeps up a circulation of air.

Work for the apiary, such as extracting, is done on the next floor above, while the third floor is used for storing empty hives.

From my large geared Stanley extractor the honey runs into a tank capable of holding 1350 lbs., that rests on the floor in the northeast corner of the extracting-room. The honey passes from this to the evaporating-pan by way of a faucet and a tin pipe projecting through the side of the building. The evaporator is made of heavy tin, and is incased in wood, as are the tanks also. It is 8 feet long, 4 wide, and with sides 2½ inches high. Every four inches of its length there is a tin partition 2 inches high, running from one side to within 4 inches of the opposite side, and alternate ones soldered to the opposite sides, so that the honey flows back and forth across the pan, a distance of about a hundred feet, before reaching the faucet at the lower end, through which it falls into a tank below, of the same capacity as the first mentioned. Any one who has seen a syrup evaporator will fully understand the workings of this one.

The tank below runs on trucks and a track, and, when filled, it is rolled out to the large sliding-door that divides the evaporating-room from lower story of the main building. From the faucet in the tank, the honey runs directly into the barrels, which are placed on end on the floor of the storing-room.

I fill all my barrels at the end, for several good reasons. When full the barrels are bunged up tight, and are ready for market, except that I always drive up the hoops just before shipping, and put double-pointed tacks behind them to prevent the possibility of slipping.

The evaporating-room is built on to, and runs out 11 feet from, the north side of the honey-house, and flush with the east side. The east wall is 5 ft. 6 in. high above the floor; the back wall 6 ft. 9 in., and the room is 5 ft. 4 in. wide. Three sash, 3x6 ft., are used to cover the room, except next to the main building, where the shadow falls. The evaporator is arranged to go close up to the glass, and can be lowered or raised at the north end to increase or diminish the speed of the honey-flow according to the heat and amount of curing desired. The evaporating-pan can be taken down and carried into the storing-room when not in use.

In both the front and back wall of the evaporating-room there are two rows of 3½-inch holes, bored and covered with wire netting, to allow a free circulation of air over the honey. The past season I have also left the door of the room open most of the time, as I find that, the greater the circulation of air, the quicker the honey cures.

The evaporating-pan is put quite close up to the east side of the room, leaving a space on the west side for a person to work over the pan to scour it or clean honey out of it when a light grade is following a dark one. The tank below is laid on casings that raise them a foot above the floor. This makes it more convenient to handle the tank or to draw honey from it into pails for home sales. The utility of the evaporator consists in the fact that honey can be taken from the hives when not over a third capped, and it can then be cured more thoroughly than could be done in the hives by the bees, thereby very largely increasing the crop. Capping honey is a slow and expensive process. By this system an even grade of honey is obtained, with much less labor and expense than when left longer in the hives. Some able men claim that honey is better flavored when ripened by the bees. I can not agree with them in this, nor do the returns and reports from those who sell my honey indicate the correctness of this theory. Nor could any bee-keeper, who has ever tried, tell me with any certainty which sample of honey handed him was ripened in the hive, and which by sun's heat. Usually they select the latter for the former, as it is usually of a heavier body. With the arrangement here described I have no trouble in thoroughly curing my crop of fifteen to twenty-five thousand pounds, and I could handle still more without enlarging my outfit, though a larger evaporating-pan would be an improvement. I have to-day 113 colonies, perhaps, of bees. W. S. HART.

Hawks Park, Fla., March 16.

[Many thanks for the full details of your arrangements, friend H. Although we have described similar ones before, we have not heretofore had such a report from direct practical use. My experience has been, that, for drying lumber, evaporating fruit or vegetables, or anything of this sort, a very large volume of dry air should be made to pass over or through the product. You did not tell us how long it took to evaporate a barrel of honey. Of course, it would depend upon how thick it is to start with. Very likely your locality would give you more and stronger sunshine than we get here, especially in March and April. This present spring, up to date of writing, April 4, has been cloudy and rainy, as a rule, while sunshine has been the exception.]

THE HONEY-BEE.

A REVIEW OF COWAN'S NEW SCIENTIFIC WORK, BY ERNEST R. ROOT.

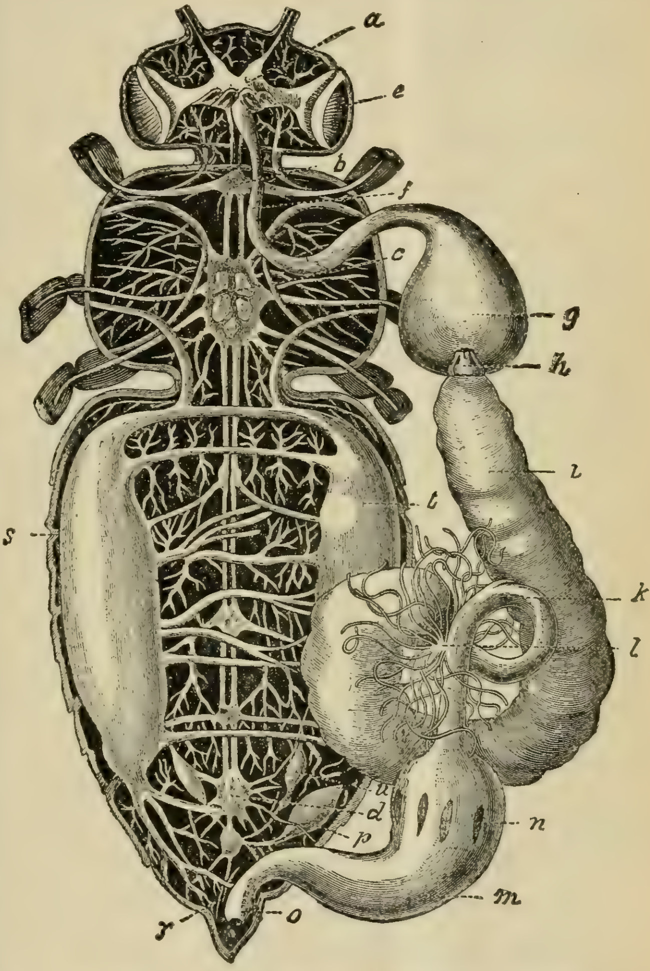
Agreeably to my promise made some time ago, I will now try to give you a taste of some of the good things that appear in that new scientific work entitled, "The Honey-Bee: Its Natural History, Anatomy, and Physiology, by Thomas William Cowan." The book is a small one, 6½ by 4½, and contains 192 pages; but it represents an *immense* amount of painstaking work. It is neatly bound, and appropriately embossed in gilt. It is wholly scientific, and therefore it has little or nothing to say regarding practical apiculture, that part being entirely delegated to a former work of the author's. During my spare half-hours in the evening I have been studying the work with a good deal of pleasure. It is not a book that can be read like a story, but it is one that requires attention and careful study. Unlike some of the larger works, it is condensed, but still seems to cover the most that is important from a scientific point of view regarding our little friends the bees.

One thing that struck my eye particularly, was the beautiful frontispiece engraving, showing almost the entire anatomy of the bee; and I became so much interested in studying it that I here reproduce it for the benefit of our readers.

Now, if you will have a little patience I will try to give you the gist of my reading, and at the same time avoid the use of scientific terms, so far as possible. I may remark, in passing, that the anatomy of the bee is, in many respects, similar to that of the human body; and in describing the various organs and functions I will endeavor to call attention to those that are similar in our own frames.

I will first call your attention to the alimentary canal—that is, the organs of digestion and assimilation. What is digestion? Our author says, "It is the separation of the nutrient part of food from the non-nutrient, and the conversion of the nutrient into a liquid fit to mingle with the blood, and thus nourish the body of the insect." We all know how the bee gathers up his food through his wonderful and delicate little tongue. It then passes into a little tube just below the point A, in the engraving, and is called the œsophagus, or gullet. We find a similar organ in our own bodies, leading from the mouth and communicating directly to the stomach. This œsophagus passes through the waist of the bee, or thorax, as it is called, and to the honey-stomach G in the abdomen. It is in this little sac, although it can hold but a tiny drop at a time, that millions and millions of pounds of nectar are carried annually and stored in our combs. This sac G is located in the fore part of the abdomen, or "hinder" part of the bee, as the boy said.

Several years ago I had a curiosity to know what the bees were working on. I suspected that they were gathering juices from over-ripened raspberries on the vines. In order to satisfy myself I grasped a bee by her waist and abdomen, and pulled until the parts were separated, and then was revealed the little honey-sac, which had disengaged itself from the abdomen. This contained a light purple or wine-colored liquid. The size of this honey-sac, as nearly as I can recollect now, was a good big eighth of an inch; and I should remark that the bee had all that she could contain in her little pocket. Cheshire says that, when the honey-sac is full, it is ¼ of an inch in diameter. This would agree with my observations.



SECTION OF BEE, SHOWING ITS INTERNAL ORGANS.

STOMACH-MOUTH.

The next thing that engages our attention is a sort of valve, which has been call the stomach-mouth, and is located between the honey-stomach and the true stomach; viz., at H. This is one of the most interesting of organs; and I suppose that no part of the internal anatomy of the bee has been studied more, theorized about, dissected, and examined, than this delicate and beautiful little valve. At H its true structure does not appear. It has been likened in appearance to a bud just about to open. It is a sort of valve, fringed on the inside with rows of bristles, or hairs, the object of which seems to be to separate the pollen grains from the nectar, the former passing into the stomach L. Without special engravings which I may yet copy from Mr. Cowan's book, I can not explain exactly the manner in which this valve performs its functions.

TRUE STOMACH.

This corresponds to the stomach in our own bodies, and performs the same function in the way of digestion in converting the nutrient particles of the food into blood. The inside walls of the stomach have certain cells which perform certain offices; but without more definite engravings it will be impossible to describe them in detail.

The next organ is the small intestine, or, as it is sometimes called, the "ilion." In the human body the small intestines are much more elaborate. It is in this that the food, after its digestion, passes, and where, by absorption, the nutrient particles not already absorbed pass into the blood, and so on throughout the system.

You will notice, also, at L, some small radiating filaments. These are called the malphygian tubes. It is not certain what their office is, but it is thought that these are the urinary organs.

At the end of the small intestine, K, you will notice an enlargement, M. This is what is called the colon. Those who have been studying the water-cure remedy, as given in GLEANINGS lately, will know something what this is in the human body. Although the appearance of the colon in the bee is different from that in the human body, yet its functions are very much the same; and if allowed to become dammed up by excreta (that is, by retention during winter) it is liable to cause disease in the bee, just the same as in the human body. On page 112 Mr. Cowan says:

> From the colon, what remains of the undigested food is expelled by the anal opening (frontispiece, *o*). For this purpose strong muscles exist, by which the colon is compressed and the excreta ejected.
>
> The quantity of the excreta voided, usually of a dark brown color, is regulated by the nature of the food; bad honey, an improper substitute for honey (such as glucose) producing a larger amount, while good honey and good syrup produce less, a larger proportion of it being digested and absorbed. It is, therefore, important that bees should have good food, as, in a healthy condition, workers never void their fæces in the hive, but on the wing. In the winter it is retained until voided on their first flight.

So you see, then, that bad food makes mischief, just the same as it does in the human body, and it is in this that the overplus of fæces is stored during winter.

HOW THE BEE "MAKES" HONEY.

After the nectar is gathered, it is then transferred from the tongue to the œsophagus and thence to the honey-stomach, G. It has been shown repeatedly by experiment that there are a great many more pollen grains in the nectar than in honey; hence the little stomach-mouth H comes into play in separating the grains from the mouth. On arrival at the hive, the bee regurgitates—that is, expels the contents of the honey-sac into the cell; but during its stay in the honey-sac the nectar has undergone a change; that is, it has been converted, says Mr. Cowan, from the cane sugar of nectar into the grape sugar of honey, by the agency of a certain gland. This sustains the position held so persistently by Prof. Cook, and his view is doubtless correct; for when two such doctors agree, and cite the authority of almost all of the eminent scientists of Europe in its support, the rest of us will have to fall into line.

But the bee may not regurgitate the honey, for it may pass directly into the chyle-stomach. We see, therefore, that, when a swarm issues, the bees, after filling their honey-sacs to their full capacity (a very small drop), can carry with them a supply of food to last them for several days; and even while on the wing, through that little stomach-mouth, H, they may take nourishment. So much for the alimentary canal, its office in digestion, and the honey-stomach.

THE NERVOUS SYSTEM.

Let us now turn our attention to the nervous system. By referring to the engraving you will see parallel and medial lines passing the entire length of the bee, and finally communicating with the brain A. Along at irregular intervals will be seen thickened masses called "ganglia." These are really little brains, and, as in our own bodies, preside over the involuntary muscles. The largest ganglion is the brain, at A, and is the seat of voluntary action and intelligence. One is surprised in reading through chapters 10 and 11 of Mr. Cowan's work, how thoroughly scientists have studied the structure of the nervous system as found in the bee. Even the tiny brain has been dissected, and its various functions pointed out—that is, what parts communicate with the antennæ, what part with the eyes, etc. I was greatly interested, in looking over the sizes of the different brains found in different insects. I quote here a paragraph from page 70:

> It is generally admitted, that the size of the brain is in proportion to the development of intelligence; and Dujardin, who made careful measurements, gives the following sizes: In the worker bee the brain is the $\frac{1}{174}$ of the body; in the ant, $\frac{1}{286}$; the ichneumon, $\frac{1}{400}$; the cockchafer, $\frac{1}{3920}$; the dytiscus, or water-beetle, $\frac{1}{4200}$.

In man the proportion is 1 to 40, I believe; but we all know that he is of the very highest order of intelligence. However, we are not very much surprised to learn that the bee has the largest brain of any of the insects, exceeding by far even that of the ant, whose intelligence we have admired over and over again.

THE RESPIRATORY SYSTEM.

It is also interesting to inquire how the bee breathes, and chapter 8 points out to us the wonders of the nervous system in the bee. By referring to the engraving given, we observe a couple of large air-sacs, called the "trachea," and correspond somewhat to the lungs. These are located on either side of the abdomen, as at T. These are divided and subdivided into smaller trachea, and these in turn ramify all through the entire body. Instead of fresh air being received in at the mouth, as with us, fresh supplies are admitted through 14 little mouths called "spiracles." Ten of these are located on the abdomen—five on each side—and are situated just about on the margin of the scales, between the dorsal and ventral segments. Four others are situated on the thorax, or waist, two on each side. You may, therefore, decapitate a bee and he will continue breathing as before. If you place a pencil dipped in ammonia near his body, the headless insect will struggle to get away; and if the pencil touches his feet, the ganglia already spoken of communicate the sensation to the other ganglia, and at once all the feet come to the rescue to push off the offending object, or, it may be, to take a closer hold so the sting may do its work. Besides that, if bees are daubed with honey they will die very soon from strangulation, because these little mouths or spiracles are closed. A bee may swim around in a trough of water, and, though his head be entirely out, he will drown just the same, because these spiracles, or breathing-mouths, are submerged under water. On a hot day, if the entrance of a hive be closed, the bees will soon begin to sweat; and, thus becoming daubed, the delicate spiracles are closed, and the bees die.

ROYAL JELLY, AND WHAT IS IT?

Nothing in the book interested me more than the discussion in chapter 18 in regard to the royal jelly. Cheshire insists that it is a *secretion* from one of the glands; but Prof. Cook has maintained that it is the product of the chyle-stomach; and Mr. Cowan proves conclusively that this is the right view, and eminent authority is not wanting to sustain them.

This chyle is produced in what is called the chyle-stomach, shown at L. in the engraving; and worker larvæ are fed on this concentrated food for three days, after which they are weaned. "On the fourth day this food is changed and the larva is weaned; for the first pap has a large quantity of honey added, but no undigested pollen, as Prof. Leuckhart had stated. The drone larvæ are also weaned, but in a different way: for, in addition to honey, a large quantity of *pollen* is added after the fourth day." And right here I can not do better than quote from Mr. Cowan:

> Microscopic examination showed that, in the queen and worker larvæ, there was no undigested pollen; whereas in the drone larvæ, after the fourth day, large numbers of pollen grains were found. In one milligram, no less than 15,000 pollen grains were counted, and these were from a number of different plants. . . . This work of Dr. Planta's, we think, conclusively proves that the food is not a secretion, and that the nurses have the power of altering its constituents as they may require for the different bees. . . . Royal jelly is, therefore chyle food, and this is also most likely the food given to the queen-bee. Schonfeld has also recently shown that drones are likewise dependent upon this food, given to them by workers, and that, if it is withheld, they die after three days, in the presence of abundance of honey. This, he thinks, accounts for the quiet way in which drones perish at the end of the season. It will now be easily understood, that, if weaning of the worker larvæ does not take place at the proper time, and that the first nourishing food is continued too long, it may be the cause of developing the ovaries, and so produce fertile workers, just as the more nourishing food continued during the whole of the larval existence in the case of a queen develops her ovaries, or even in the absence of a queen the feeding of workers on this rich food may tend to have the same effect. This, then, is the solution of royal jelly and brood food.

I would say, in conclusion, that I enjoyed greatly studying up this subject. It used to be an old passion of mine; but it took such an immense amount of time, and caused such a severe strain on my eyes that I abandoned it.

In my effort to put the whole of this into common parlance, I may possibly have stated some things incorrectly. If so, I shall be glad to have our author or Prof. Cook set me right.

THE CLOVER EXPERIMENT.

E. E. HASTY TELLS US HOW HE PROSPERS IN TRYING TO DRIVE DAME NATURE.

Friend Miller pokes me up with a "straw" about those clovers. Yes, doctor, I've got an improved clover (that is, part of the time I have it); but, just to pester me, it almost totally refuses to bear seeds. And the seedlings, when I do get a few, about nine-tenths of them backslide. The florets of this specimen of clover are double; and, as abnormal double flowers are usually seedless, my tribulations are not unaccountable happenings, but the regular course of the Cosmos. Never mind; just wait till we see what we shall see.

I have some fear that my phenomenon does not secrete nectar as freely as the unimproved clover. I do not see bees on it. But then, I believe bees rather seldom go to *one plant* of a thing that is new to them. I have never yet had even a square yard of it in bloom at one time. So far as length of tube is concerned, it seems to be short enough.

I have had over a dozen sub-varieties of clover in tow; but one by one I have dropped them, until I now have but four in training. You see, it's like trying to drive the hens away from their home. You can drive them a few rods away from the barn very easily; but the further you go, the more desperate they get in the determination to get by you and go back again. E. E. HASTY.

Richards, O., March 31.

STRAY STRAWS FROM PROF. COOK.

SHALL WE GATHER FIGS FROM THISTLES, OR WHEAT FROM CHESS? ETC.

That was a very happy thought—securing the "Stray Straws." Good, too, to use this valuable letter on first page, as it saves time; for your readers will soon pick for these grain-laden straws the first thing.

Does not Dr. Miller know that Michigan and Rhode Island are both experimenting with bees at their stations? They are both doing something with bees, and, I hope, for bee-keepers. Was this among your "Don't knows," doctor?

It is nearly as easy to quiet bees by the use of carbolic acid as by the use of smoke. If such practice antagonizes "foul brood," those interested may well adopt it. It is surely worth a trial by those who are sufferers.

Why does a writer in one of the recent journals say that it is proved conclusively that "foul brood" results from chilled brood? I did not suppose that there was a shadow of proof of that statement. When figs come from thistles, then we may expect foul brood from chilled, and I think not before. That "foul brood" should be more common north, is easy to explain. Disease always reaches for those of feeble health. That the microbe which attacks our bees should form no exception is easy to believe. The bee is native to a warm clime. North it is apt to suffer from a rigorous climate—to become enfeebled, and so form a ready seed-bed for this dread malady.

Dr. Miller places a minute interrogation-point, inferentially at least, after my statement that honey is a safer food for bees in quiet than is cane sugar. I know of no experience, doctor, that contradicts it. Do you? Suppose you feed cane sugar in the fall. When the bees are active they digest it and place it in the cells. They do this when active, unconfined, and able to digest it. The old saying, that "dyspepsia hates a buck-saw," applies here. Shut the bees up and feed cane syrup, and you have a different condition. I believe cane-sugar syrup, fed in the fall, is superb for a winter diet for bees; but fed in the winter, while they are precluded from all exercise, I should fear it. As Dr. Miller intimates, there is that which is called honey, which we would not care to eat, and better not compel our bees to eat, at least during the time of winter confinement. I am surprised at Dr. Miller's big (?) regarding a cure for the "nameless bee-disease." I supposed it quite settled, that removing the queen cured that ailment; but here I quote the doctor: "I do not know."

I am glad to hear Mr. Cowan's book praised. It is excellent. He gives the history of most of our discoveries, and withholds no credit. He does not say that the upper head glands secrete the larval food, but, as I showed by actual experiment, a year ago, the larval food is really chyle, or a product of true digestion in the true stomach. I fed bees syrup with pulverized charcoal in it, and found the latter in the royal jelly. This could not occur if royal jelly were a secretion.

Our bees in the cellar seem to be doing very nicely. We must praise the past two winters for bees, even if we can not boast of the summers and their product. A. J. Cook.

Agricultural College, Mich.

[At the Detroit convention somebody asked whether chilled brood produced foul brood. I answered, "Not unless corn grows where corn has never been planted." R. L. Taylor added, "Or when wheat turns to chess." As good authority as R. L. Taylor gave us experiments that seemed to prove most positively that sugar syrup is a safer winter diet than honey, and I supposed this was well settled more than ten years ago. I have fed bees syrup all winter long, both outdoors and in the cellar, just on purpose to see whether it would hurt them. They came out strong and healthy. I have, however, had bees die from spring dwindling when it looked somewhat as if feeding during cold weather aggravated the malady. That experiment with pulverized charcoal in the syrup was a bright idea. I congratulate you on it, friend Cook.]

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ILLINOIS PROPOSES TO HAVE A LAW TO PREVENT SPRAYING FRUIT-TREES WHEN IT MAY POISON THE BEES AND HONEY.

THE ADVANTAGE OF HAVING A LIVE BEE-MAN IN THE LEGISLATURE.

Friend Root:—Inclosed please find two bills which I have had the pleasure of introducing into our Legislature. Should they meet with a favorable consideration from you, any comments through Gleanings will be highly appreciated by myself and the many friends desirous of their passage. J. M. Hambaugh.

Springfield, Ill., Mar. 31.

37th Assem. HOUSE—No. 607. Mar. 1891.

1. Introduced by Mr. Hambaugh, March 26, 1891.
2. Read by title March 26, 1891, ordered printed, and referred to committee on horticulture.

A BILL

For an act to protect bees from poison through the spraying or otherwise treating of fruit or other trees, shrubs, vines, or plants, with London purple, Paris green, white arsenic, or other virulent poisons, while the aforesaid trees, shrubs, vines, or plants are in bloom.

Whereas, spraying of trees, shrubs, vines, or plants at the proper time greatly improves the conditions favorable for a crop of fruit, and

Whereas, spraying should never be permitted until the blossoms have fallen from the latest blooming trees, and

Whereas, the insects injurious to fruit do not make their appearance until about ten days after the bloom, and

Whereas, the spraying of trees, shrubs, vines, etc., while the same are in bloom poisons the bees and seriously injures the bee-keepers and reduces the signal benefits to the fruit-growers, who have repeatedly demonstrated that the bees ensure better crops, therefore

Section I. *Be it enacted by the People of the State of Illinois, represented in the General Assembly*, That it shall be unlawful for any person to spray any fruit-trees, shrubs, vines, or plants, with Paris green, London purple, white arsenic, or other virulent poisons, or to scatter upon such trees, shrubs, vines, or plants, powdered London purple, Paris green, white arsenic, or other virulent poisons, while such trees, shrubs, vines, or plants are in blossom, and so may be visited by honey-bees in quest of nectar or pollen.

And that any person who shall spray such trees, shrubs, vines, or plants with London purple, Paris green, white arsenic, or other virulent poisons, or shall scatter the poison upon the same while in blossom, shall be deemed guilty of a misdemeanor, and for the first offense shall be punished by fine in any sum not less than five dollars, and for the second offense by fine in any sum not less than twenty-five dollars; and, in default of payment of the same, by imprisonment in the county jail not more than ninety days.

Sec. II. The fines resulting from the operations of this statute shall be paid to the State Treasurer by the court imposing the same, and be placed by said treasurer to the credit of the Illinois Bee-keepers' Association to be used by said association in promoting and developing the industry of bee-keeping in this State.

Sec. III. The Illinois Bee-keepers' Association may in its discretion employ a competent person as an executive officer for service in enforcing the provisions of this statute, whose powers, duties, and title shall be prescribed by said bee-keepers' association, and whose compensation shall be fixed by said association subject to the approval of the Governor. Said executive officer shall be removable at the pleasure of said association.

Sec. IV. The fines resulting from the operation of this statute, or so much thereof as may be necessary for the purposes named above, are hereby appropriated to defray the cost and expense of the work contemplated by this act, to be paid by the State Treasurer from funds not otherwise appropriated, upon warrants drawn only upon itemized vouchers, and bills signed by the president of the Illinois Bee-keepers' Association, countersigned by the secretary thereof, and approved by the Governor. *And provided, further*, that in no event shall the State of Illinois be held or become liable in any amount in excess of the revenue obtained through the operations of this statute.

37th Assem. HOUSE—No. 599. Mar. 1891.

1. Introduced by Mr. Hambaugh, March 25, 1891.
2. Read by title March 25, 1891, ordered printed, and referred to committee on appropriations.

A BILL

For an act to provide for the participation of the State of Illinois in the World's Columbian Exposition, authorized by an act of Congress of the United States, to be held in the city of Chicago during the year 1893, in commemoration of the discovery of America in the year 1492; and for an appropriation to pay the cost and expense of the same.

Whereas, the large revenues derived annually from the sale of honey by the bee-keepers of Illinois make this important industry worthy of the fostering care of the General Assembly, and

Whereas, a creditable apiarian exhibit by the bee-keepers of Illinois at the World's Columbian Exposition to be held in Chicago in 1893 will call marked attention to this growing industry and greatly assist in the development of the same, and thereby add largely to the material prosperity of the State, and

Whereas, the Illinois Bee-keepers' Association, an organization composed of the leading apiarists of the State, and duly incorporated in compliance with the statutes of this State, have petitioned this General Assembly for an appropriation to defray the expenses of making an exhibit of bees, honey, apiary supplies, and appliances at the World's Columbian Exposition in 1893, therefore

Section I. *Be it enacted by the people of Illinois, represented in the General Assembly*, That there be and is hereby appropriated to the Illinois Bee-keepers' Association, out of any money in the treasury not otherwise appropriated, the following sums, to-wit: For the payment of the expenses of making an exhibit of bees, honey, apiary supplies, and appliances at the World's Columbian Exposition to be held in Chicago in 1893, the sum of five thousand dollars, or so much of said sum as may be required to make a creditable display.

Sec. II. The Illinois Bee-keepers' Association may in its discretion employ a competent person as an executive officer for service in preparatory work and care of the State Apiarian Exhibit, whose powers, duties, and title shall be prescribed by said Bee-keepers' Association, and whose compensation shall be fixed by said association, subject to the approval of the Governor. Said executive officer shall be removed at the pleasure of said association. Any member of said Bee-keepers' Association, other than said executive officer, rendering service in connection with said State exhibit, by instruction of said association may receive as compensation therefor only necessary expenses and cost of transportation while actually employed in such service.

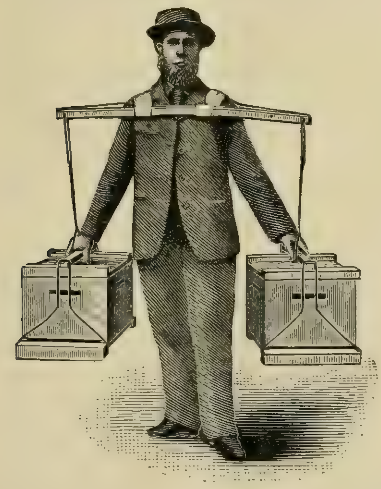
SEC. III. The sum of five thousand dollars, or so much of it as may be necessary for the purpose, is hereby appropriated to defray the cost and expenses of the work contemplated by this act, to be paid by the State Treasurer from funds not otherwise appropriated, upon warrants drawn by the Auditor of the State, which warrants shall be drawn only upon itemized vouchers and receipted bills signed by the president of the Illinois Bee-keepers' Association, countersigned by the secretary thereof, and approved by the Governor: *And provided further*, that in no event shall the State of Illinois be held or become liable in any amount in excess of the sum hereby appropriated.

[We publish the above for precedent for action on the part of other States of the Union. If your neighbor should undertake to spray his trees while in bloom, I think if you would show him the above he would be very likely to assent to the justice of your request, and forbear.]

M'FARLAND'S DEVICE FOR CARRYING HIVES.

HOW TO CARRY HIVES IN AND OUT OF THE CELLAR; A SEASONABLE ARTICLE.

Having not always found it an easy matter to procure good efficient help to assist in carrying bees to and from the cellar, I began some time ago trying to invent some way by which I could do the work more speedily and easily. Sometimes I would endeavor to do this work alone, carrying one hive at a time; but I found a hive of bees rather awkward to get hold of to carry any distance, and very tiresome when one has 100 or more colonies to place in winter quarters, as I have had. At other times I would place two or three colonies on a board, and take them to the cellar or to the yard, with the aid of an assistant. I found these methods quite unsatisfactory, as well as the plan of taking two men to carry in one hive at a time, which was not expeditious enough, and too expensive. I remember, when I used to work in the maple-sugar bush, we had sap-yokes to support and balance the pails on either side, and it occurred to me that this yoke might be adjusted for moving hives. After some little thought upon the subject I studied out the arrangement as you see herewith illustrated.



M'FARLAND'S DEVICE FOR CARRYING HIVES.

The yoke consists of two bent pieces of wood, fastened together in such a manner that, when adjusted, one piece is in front and one behind the carrier, and the weight comes squarely upon the shoulders by means of two wide pieces of webbing, making a very easy support.

The clamp attachment to the hive is of my own construction. I have loose bottom-boards, similar to the Dovetailed hive, and this clamp springs on to the bottom-board at the front and rear ends of the hive. It is very quickly put in place and taken off. I have used this yoke and clamp for some time past, and find it the most convenient contrivance for moving hives I have ever seen. By its use one man can do the work of two, do it easier, and with much less jar to the bees. F. H. McFARLAND.

St. Albans, Vt., March 4.

[Your device, although very old in principle and application, is good. Whether any one else has suggested a similar thing for carrying pairs of hives, I do not know. It puts the weight at the right spot, directly across the shoulders; and a man can carry more comfortably a weight suspended from the shoulders than from any other point. The arms come just right to steady the burden and equalize the possible difference in the weight of two hives. The only objection that I see to it is, that it would be a little unhandy about getting through narrow doorways, and possibly down steep cellarways. A great many cellar-steps are so constructed that the head comes about a foot above the top of the doorway when standing on the last step. It is so at my house; and I imagine that, with a couple of hives on the yoke, it might be a little inconvenient to stoop down and pass in. Still, I propose to try it. For upground repositories I think your device will work very nicely; and no doubt it can be used advantageously for *most* cellars having more convenient means of ingress and egress. This will appear when most of our friends will be thinking of carrying their bees out of the cellar, and it will give them time to make an implement and try it.] E. R. R.

WATER CURE FOR NASAL CATARRH, ETC.

WASH YE, MAKE YOU CLEAN.

Friend Root:—I read your article on water cure, in March 1st GLEANINGS, with a great deal of interest. I think you are right in exposing this great swindle, and also in giving to the people a simple remedy of such great value. The great judgment only can tell the amount of good you are doing in this way.

There is another subject I should be glad to see you take up in GLEANINGS, and that is nasal catarrh. It can be treated and cured in the same way you describe. Dr. Pierce, of Buffalo, N. Y., gets up his nasal douche, a tin holding perhaps a pint, with a tin tube near the bottom (on the order of the honey-gate in an extractor). Take a small rubber tube, some two feet long; slip one end on the tin tube and the other end on a little nozzle to go into one nostril. Dr. Pierce, of course, sells medicine for catarrh which is good, but not necessary in every case. Simple warm water, with a little salt in it, is good, and this, with a suds made from castile soap, has cured some bad cases. Put the liquid in the can; set it overhead; hold the rubber tube so the liquid can not flow; insert the nozzle in one nostril, breathing through the nose, and let the liquid flow. It will flow up one nostril and down the other, cleansing and healing the nasal passages as nothing else can. Use the warm salt water and the suds (warm of course) each once a day, and it will cure any ordinary case. J. H. Hill.

Venice, Fla., March 21.

[Well done, friend Hill. While I was looking over Dr. Kellogg's book in regard to the Hall discovery, I noticed the apparatus you mention illustrated there. A few days ago I had quite a severe cold, and toward its winding up it seemed to me that it would just be fun to get Dr. Kellogg's apparatus and give my nostrils a good rinsing out. I did not know just how to go at it, however, and I was afraid I might get strangled, and therefore I let it go. Now you have made it as plain as A B C. But are you positively sure, my good friend, that there is any thing at all needed but pure water? Just listen. A poor woman was grievously afflicted with some kind of rheumatism. She and her husband scraped up money, and she went to a celebrated water-cure. Sure enough, she began to improve right away, and in a few weeks she was comparatively well. After she went back home, however, the old symptoms returned, and finally she was about as bad as before. It cost an awful lot of money to get to the celebrated springs, and they could not afford it. As a drowning man catches at a straw, however, one of the twain, I do not remember which, suggested that she take a daily bath with the water that was at hand, using it in the same manner she used the water at the medical spring. What do you think the result was? Why, a daily bath, with simply common water, relieved her of her trouble just as well in her own home as it did at the expensive watering-place. By the way, how much does it cost to go to a high-toned medical spring, and take a course of treatment, paying the doctor, traveling expenses, high-priced board, and all that? May be some of you can tell. And is it not humiliating to be obliged to confess that the whole thing amounts to nothing more nor less, *finally*, than the old-fashioned water-cure treatment of Fowler & Wells, published so freely all over our land more than forty years ago?

On page 273 of our last issue, a friend, who has been an invalid for years, tells us about using flaxseed in connection with flushing with water, for cleansing the small intestines as well as the colon. By the way, friends, I have been expecting all along that somebody would take exceptions to the way in which we were discussing not only subjects that are usually considered delicate, but matters that might be considered by some out of place, or lacking in dignity. Well, there has not been a single such protest that I know of, unless it was a little bit of pleasantry now and then. I suppose the reason is, that so many of us have been longing for relief in this very line, and perhaps longing for any thing that would give us aid in this matter of keeping the human frame divine sweet and clean, fit places for the dwelling of the Holy Spirit. Well, I have been eating flaxseed, as recommended, and I am rejoiced to tell you that, in my case, it answers the purpose perfectly. Please bear with me if I tell you just why I feel so certain that it is a valuable adjunct. I drank a great lot of hot water about seven o'clock in the evening—so much, in fact, that it made me feel uncomfortable to some extent through the night. Then in the morning I commenced, the first thing, eating flaxseed. It is not the pleasantest stuff to eat, by the way and I kept thinking, while I chewed it up fine, that I should prefer to have it cooked in some way, if it would answer the same purpose. I used the flushing remedy the night before, so that I could be sure that it was the flaxseed that did the cleansing if there was any. Well, within an hour after taking it I began to feel its effect. And now comes the whole point of my story. The offensive smell that I told you of when I first began the flushing, has not been noticeable for perhaps months. On this particular occasion, however, the old familiar and exceedingly offensive smell was present, indicating unmistakably that the flaxseed had loosened up and brought away accumulations that had been perhaps for a long while lodging in the small intestines, and matter that the water itself had not reached. We are surely making progress; and is there any other subject, in the whole range of human intelligence, of more moment and more importance than this one of making ourselves clean—of following the injunction found in the Scripture texts which I have so often quoted to you—"Wash ye, make you clean"? A great wave is going through our land, and possibly other lands, in this direction of thorough washing; and I tell you, it is a hopeful sign. When we bend our energies, and the intelligence of the thinking people of the world toward this matter of cleanliness, and of making our bodies not only clean without but clean within, wherever pure water can be made to go with the aid of all modern appliances, I tell you we are on the highway to some great achievement. One happy thing about it is, that it is within the reach of all—the poorest as well as the richest, and there should be no excuse hereafter for uncleanness in any shape or form. Our country has been given to booms—first one thing and then another. Sometimes these booms are wholesome and sometimes not. But if there is going to be a great big boom all over the world in washing the body more thoroughly than has ever been done before *since the world began*, it is certainly going to prove to be a good thing, and a great many steps heavenward; for "cleanliness is next to godliness." Let us wash our bodies, our feet, our hands, our heads, our ears. Small boys can have a share in this latter. How my good mother did used to exhort and reprove me because my ears and finger-nails were not clean! After we have got the ears and scalp washed and cleansed, then our *noses* must be overhauled, as our friend Hill advises. Then let us provide plenty of tooth-brushes, and wash our mouths and our teeth. Very likely some nice soap with the soft water, or perhaps some clean sand or charcoal dust, might help along. We want flesh-brushes and nail-brushes as well as tooth-brushes. And, by the way, who knows whether we shall not succeed in doing away with this disagreeable thing of a bad-smelling *breath* that afflicts some people? My dear friend, how many do you know among your acquaintances whose breath is offensive? May be you have been told that *your own* breath is offensive. If so, what would you give to have it sweet, pure, and clean, like the breath of a baby? Well, I am inclined to think that, with the information that has been given in these pages of Gleanings, the whole thing may be accomplished. Let us first put the whole body in the right shape with energy. You see, your friends do not always tell you when your breath is offensive; but your wife will; and next time you give her a kiss (I really hope it will not be three or four weeks before you do), just ask her to tell you whether or not your breath is improving. Oh! by the way, if you are in the habit of using tobacco, after you get cleaned up nicely, inside and out, you will be in excellent trim to leave off the foul weed. Why, it would be a great pity to defile the holy temple after having been made clean in the way we have indicated. And all this great work in cleanliness, and its resulting health, is to be accomplished in your own home, by means of pure water, pure air, plenty of sunshine, and all the rest of God's free gifts. What will the doctors do? Why, bless you, we will pay them a good salary, and appoint them as inspectors to overhaul us, say twice a week, and see that we are doing our duty on the above line.

GIVING AWAY THE WATER-CURE SECRET AMONG THE FARMERS.

There is an agent in our neighborhood selling Dr. Hall's recipes. He hasn't sold any in this neighborhood, for I haven't been very still. The farmers are organized all over this part of the country, and it is an easy matter to get news around in a very short time.

Solitude, Ind., March 17. J. P. UTLEY.

WHAT A DOCTOR SAYS OF THE WATER CURE, AND ITS OLDNESS.

We have one of Dr. Hall's agents here selling the "secret" for $4.00. I am a graduate of the Hygeio-Therapeutic College, of New York, of the class of 1865, and have used the drugless remedy for 30 years. When I first heard of Dr. Hall's "secret" I said I could guess what it was; and I told the agent that, if there was one part of the water-cure system of more importance than another, it was the use of water injected into the colon. I am not practicing now, but I could give numerous instances of the relief administered by the syringe. I know of no better motto for health than "Trust in God, and keep your bowels clean." EZRA YODER.

Paola, Kan., March 11.

WATER CURE—USING IT TO EXCESS.

I think you extremely modest in putting the internal water treatment before the public. While others, through greed and avarice, are making money selling this as a new and secret remedy, I am glad that you are so magnanimous as to print and furnish it for distribution free of cost. Only lately I paid four dollars just to find that one Hall had learned this treatment about the same time I did. Now a word of caution. Old men sometimes ride hobbies, and it is said that old cranks are the worst of cranks. Don't come to regard this as a universal panacea. Don't recommend it on all occasions and for all persons. It is possible to practice it to such an extent that nature will cease to perform her functions, and the person be left dependent on artificial means for the operations that nature is intended to produce. I suppose you remember a case reported of a typhoid patient dying by using this remedy. Please send me 50 to 100 copies of the treatment.

Philipsburg, Pa., March 10. JNO. D. GILL.

WATER-CURE TREATMENT; WASHING OUT THE STOMACH.

I wish to say a word about that "drugless remedy." There is one point you have not touched upon. An acquaintance of mine was sick for a long time with a stomach trouble. The usual prescriptions were administered with but little effect. Finally the doctor brought a long rubber tube, about three or four feet long, with a funnel at one end. The small end was introduced into the stomach, and warm water poured into it until the stomach and tube were full. In a short time the funnel end was dropped low down over a proper receptacle, and the contents of the stomach all came out through the tube. All that was not digested was removed; and when food was taken again, the man had a clean stomach to start on, and his improvement was immediate and marked; and thus what drugs failed to effect the water accomplished. This doctor gives the same treatment to others afflicted in like manner. I suppose this means is known to you, but I think it should be mentioned in connection with your other "wash and be clean" arrangement. I know that the use of water will relieve the painful effects of piles, and am not sure but a frequent application will result in a permanent cure. RAMBLER.

LADIES' CONVERSAZIONE.

MRS. HARRISON GIVES SOME ENCOURAGING WORDS.

THE LADIES' PARLOR.

I had begun to think that GLEANINGS was not as good as it used to be. When a new one came I would look it all through to see if any of the ladies had written, and felt lonesome and disappointed when I found nothing from them. I do not believe that I take much interest in a bee-paper where the other sex do *all* the writing. The April 1 No. of GLEANINGS was a delight, a regular "conversazione." How nice in the editor to fit us up a parlor to do our talking in!

I am personally acquainted with all in attendance at the last "conversazione," with the exception of Mrs. Grubb, and to her I extend my ☞ in token of friendship, and I should be glad to welcome her to our bee-conventions or at my own home.

It is refreshing to hear from "Our Clearing" again, and hope that Nellie Linswik will come often and bring with her her sister, who wields so graceful a pen. I've long thought that I could not go to that great city of Chicago if it were not for my dear friend Mrs. Stow to guide me and keep me from being run over by the grip cars which glide upon one unawares. And now that I am the eldest, I will take the big chair, and Mrs. Axtell can recline on the sofa, as she is an invalid, and we will have a talk about seats.

RESTING-PLACES IN THE APIARY.

The girls will no doubt say, "Umph! *I* don't want any." My advice is, that you had better try them, at least. I've learned to do a great deal of work sitting that I could not do at all if I did not. A woman complained to a very self-reliant neighbor that she was not able to stand up to mix her bread. She replied, "Sit down, then." That was not the kind of answer she expected or desired, and she would not be apt to apply to her again for sympathy. Our hives stand upon the ground, raised at the back the height of two bricks, and one in front; and if I had to remove the combs from one hive to another standing, I could not do it; but I can enjoy doing it sitting. Our hives are eight-frame Langstroth, with cap and loose cover. The cover is two boards, grooved together and cleated. I've received a great many curtain lectures from turning these caps upon their sides and sitting upon them. I'm told that I rack them, which I do when the ground is uneven; and once I found myself sitting down suddenly upon four little boards. "If you *will* sit upon the caps, why don't you put the cover on and sit that way?" The cap is lighter, and of a height to suit me better. If I should get down upon my knees at the side of a hive, the rheumatism would find it out in an hour, and move in. If I get upon my knees around a hive, I put down a cover and kneel upon it. It would be inconvenient to carry a chair around, and the height would not suit me as well as the cap does. I do not believe I could sit upon a cover, as Ernest Root does. Perhaps our young ladies can. I use hives for seats in different places around the apiary, under the green ash, when I'm watching for swarms, and sit down to eat a bowl of pounded ice, or in my office scraping out hives, which is under the leafy cover of a grape-arbor.

I have, in my rag-bag, a ripped-up pair of brown linen drilling pants. I intend to make a pair of mits of these, extending to the finger-tips. I know I can handle frames much quicker with these on, and the bees do not sting through linen. Their stings appear to slide over it and not penetrate it.

A GOOD DINNER.

That good dinner that Mrs. Axtell speaks of is a desideratum during the busy season of the apiary. But how to get it when there is no reliable help in the house is the question. I find that I can not leave food cooking over a gasoline stove, as well as over a coal fire. It is so much hotter, it boils dry sooner. If it is a cool morning I make a fire in the cook-stove, bake graham gems, and, if I want to cook snap beans, I put them on over the remaining fire, and they will cook slowly for hours; and if it goes out I light the gasoline to finish. Vegetables that cook quickly, like green corn, asparagus, etc., I get ready in the early morning, and cook over the gasoline. MRS. L. HARRISON.

Peoria, Ill., April 5.

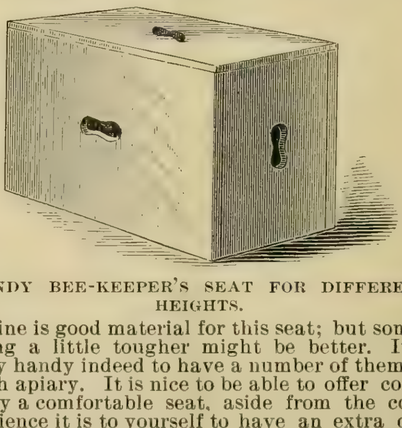
[Ever since this matter of seats has been mentioned in different letters, I have been feeling a little uneasy because I have not told you my own experience. I have several times been on the point of being used up through nervous prostration; and perhaps some of my friends think me notional even now, because I refuse to consider an important matter without first sitting down. The book-keeper will come to me with a list of bills to be paid, wanting my approval. Now, a great many times when I am putting on my nose-glasses I reach instinctively for a seat. As it does not look well for a man to set down and leave a woman standing, I often tell her to sit down too. But she says she does not care for a seat. Well, a good many times I don't; but when I am really suffering from lack of exercise, and when I could walk a mile through the woods and over the fields, I often feel that I should be used up if I did not have some place to sit down before I undertake any mental effort. I know other people don't care as much for a seat as I do, because they do not say any thing about it. But any comfortable place to sit down is to me, when full of care, like a drink of cool spring water to a thirsty man, or like an oasis in the desert to the fatigued traveler. When I get my book written, "How to Doctor People Without Medicine," I assure you that plenty of handy *seats* will be a conspicuous figure in the work. It is not only out in the apiary, but wherever people are employed where they are obliged to *stand still* a good deal, that seats are a saving of strength, and I feel sure, many times, a saving of life. One of the housekeeping journals advised the housekeeper to have handy, light strong stools of different heights. I often go through the rooms where our girls and women are at work; and I not only suggest but *insist* on their having stools to sit down on, when their work admits of it. If I am to show them any thing that occupies more than a minute or two, I want a stool to sit down on; and I want my pupils to sit down likewise. Now, stools sometimes play an important part in matters of more import than business and success in life. Sometimes I feel as if I should like to have a good talk with some of these good friends on their spiritual interests; and oftentimes I know beforehand that they will perhaps evade, and, may be, try to shift responsibility. At such a time I want to *sit down* by them, and I want them to sit down by me, in order that we may *fully* understand each other. Sometimes just the opportunity and circumstances seem to be at hand, and the only thing lacking is a couple of chairs or stools. If I could sit down comfortably, and see my friend also seated in like manner, it seems to me I could speak a word for Christ Jesus in a way that would surely bear fruit and bring happiness to the brother or sister in question. Now, then, who shall say again that a place to sit down is of little consequence?]

A HANDY SEAT FOR THE APIARY.

A PATENTED (?) ADJUSTABLE SEAT.

You ask, Mr. Root, for a description of the seat we use in our apiaries. We have tried a number of different kinds, but the one we have settled upon as the most convenient is simply a box 17x12x9 inches. For the end, take two pieces of ⅞-inch lumber, each piece 11x8 inches. For the rest, use ½-inch lumber, 17 inches long. A box closed on all sides is not very easily picked up. To make it so, put a hole in the middle of one side, 3x1½ inches. For greatest convenience, put one in each side. This makes a strong, light seat, and one that is very easily picked up. It gives us three different heights, which is of considerable importance. Turn the picture on one side, and you will see the seat at a different height.

I don't know why it is, but Dr. Miller and I never want the same height in a seat. He generally sets the box on end, using the 17-inch height, although he sometimes uses it at 12 inches. I prefer a low seat, and, if working at the hive when there is no tiering up, I like the 9-inch height. I can use the 12-inch quite comfortably; but the 17-inch would be very uncomfortable, unless working at an upper story, when it is quite convenient. So you see the advantage of having different heights.



HANDY BEE-KEEPER'S SEAT FOR DIFFERENT HEIGHTS.

Pine is good material for this seat; but something a little tougher might be better. It is very handy indeed to have a number of them in each apiary. It is nice to be able to offer company a comfortable seat, aside from the convenience it is to yourself to have an extra one or more lying around handy. They are quickly and easily made, and almost any bee-keeper will have plenty of waste boxes or other lumber that can be utilized in making them. So the item of expense need not be counted. It's a good time to get them ready now, so as to have them all ready when the busy time comes. The way we came to use them in the first place was by having so many empty glass boxes lying around, which we used for seats; but they were not quite substantial enough with one open side. Dr. Miller always sat on the end; and after being in use for a while they would split, sooner or later, although the ends were of ⅞-inch stuff. Nailing up the open side makes them very strong.

HOW TO LOSE TOOLS.

Do you ever have any trouble losing your tools in the apiary? You are a model bee-keeper if you don't; for brushes, chisels, etc., have a habit of hiding just at the moment you want them most. Dr. Miller is very orderly about his tools (I'm not going to tell you how I am with mine). He usually lays them on top of a hive in plain sight; never on the ground. If he accidentally drops one on the ground, he stops immediately and picks it up, no matter what he is doing. He says if he doesn't he will forget all about dropping it and it is hopelessly lost. But even then, he sometimes loses them. It is funny how you can look for something in vain when it is right before you. If you have any difficulty with yours, an excellent way is to tie your brush, chisel, etc., to your apron, or button-hole, with a good strong cord. Then you are sure of them, and can drop them at will. Dr. Miller had an arrangement which he liked very well. He had a strong cord fastened together so that he could slip it on over one shoulder and under the opposite arm, and the string of each tool was fastened to this cord instead of the button-hole. EMMA WILSON.

Marengo, Ill., April, 1891.

[Your box looks as if it might be real handy, though I would about as soon use a hive-cover. Yet if I were to use that light handy box, with its *patent* adjustable heights, I might like it.

Yes, we do lose things, just the way you speak of; but more often one of our men in the other departments will borrow it without saying any thing about it, because it belongs to the big boss, and that is the last of it. This is one of our serious troubles at the Home of the Honey-bees.] E. R.

MRS. AXTELL DISCUSSES SOME IMPORTANT MATTERS.

CLOTHING THE FEET IN WET WEATHER.

Women's light rubber boots are not enough protection to the bottom of the foot, I think. I like boy's rubber boots better, as one should wear them only when the feet need protecting from dampness. They are a great convenience, even for persons who do not work among bees, to slip on and care for chickens in sloppy weather; and many times they will be found useful and healthful.

WHY QUEENS ARE SOMETIMES DESTROYED AFTER HAVING THEIR WINGS CLIPPED.

Some say they lose so many queens if they clip their wings. One reason, I think, is because the scissors were not strictly clean, and had been used for other purposes, and so left a scent on the queen, as bees have a very keen smell; or the fingers were not perfectly clean, or the wing was cut too close, or she was clipped during a honey-dearth when bees are cross. I believe that bees, oftener than we think, kill or ball their queen when handled in a honey-dearth (even when the queen is not touched), early in the spring especially.

NEVER TASTED HONEY.

We took a little girl of ten years of age from the New York Juvenile Asylum, to raise. She had never seen nor tasted honey before coming here.

WHY BEES DON'T PAY.

One reason some do not make bees pay, they have so much work on hand just when bees are needing care that the golden opportunity passes by, and the bees are not made strong enough in time for the honey-harvest. Mr. Muth's article in the *American Bee Journal* on that subject hits the nail on the head, and should be read by every one keeping bees. I believe that to be one of the greatest reasons, if not *the* greatest reason, we do not secure more honey each season. If the bees are strong in numbers, and have plenty of honey in the hive, and the hive is contracted so that the brood can be kept warm, such colonies need no feeding nor nursing; and in this locality they should be set out of the cellar by April 1. But if the colony is weak, or short of stores, unless the bees have extra care, their chances for gathering honey in paying quantities, even in good years, are slim. Some practice drawing brood and honey from strong stocks to build up the weak, but I think that does not pay, neither would I unite two weak ones unless one were queenless. I should prefer to unite three or four, or else build up the weak ones; as two weak colonies, both having a queen, do not seem to be much if any stronger after a few days than before they were united. I know of nothing that a woman can work at and make pay better than to take those weak colonies under her wing and nurse them into strong ones by the time the honey-harvest comes. Men-folks say weak colonies don't pay to fuss with—at least, some in their writings say so; but I think it does pay. They should know how to do it aright, as it is death to weak colonies to be handled in unsuitable weather, and to be improperly managed.

Women as bee-keepers should plan to have all house-cleaning and sewing done up, even before time to work with bees in the spring, so that the spring care may not be neglected, as well as to have all surplus receptacles ready that will be needed, and hives ready; for, very often, other work we do not think of will sandwich itself in; and we find, with the care of our own housework, the extra care of the bees is too much; and as it is with the housework which no woman likes to neglect, nor ought to neglect, so the bees are neglected in the spring, which takes away the profit of the year.

OFF YEARS FOR HONEY.

When we are convinced that there is to be a failure we do our painting and repairing of house, barns, vehicles, etc., so as to have as little of such work to do good years as possible.

Though it has often been mentioned in our bee journals and books, that it is the strong vigorous colonies that give the most honey, yet we are prone to forget that we can not have vigorous colonies unless we have vigorous queens. Last June, when bees were gathering honey, I could remember in almost every case where the colonies were working nicely in sections, that they had reared a young queen the year before; and the colonies with old or failing queens did but little in sections.

HONEY-DEW ON HOUSE-PLANTS.

I noticed on my house-plants this fall a sweet sticky substance that tasted like honey. I suppose it was honey-dew. The window where the plants were was spattered with the sweet substance. I washed it off then, and noticed, underneath some of the leaves, a little red cocoon about as large as the head of a pin; but I saw no living insect. Last week I again noticed that some of the leaves on my oleander-tree were a little sticky, and a few of those little red cocoons, I should think they were, under the leaves.

BEE-FEEDERS.

Last fall, when we fed up some colonies for winter, we tried several feeders, and none gave better satisfaction than cheap tin milk-pans. If one buys quite a number they can be bought very cheap; and then we are sure of no loss of the syrup. We had cotton cloths over the top of the pans, and we filled them full and set them on top of the frames and covered the rest of the frames up, except large entrances for the bees to go above; and in one night they would take down two quarts or more, and worked vigorously until all was gone. We had some old wooden feeders we thought were glued and propolized so tight they would not leak; but if filled above, where tried, we found them leaking in the hive; and one that stood outdoors in the rain several days, out of which we had to pour the water, when put into the hive they let a gallon of rich syrup run out, and caused bad robbing of that colony the next day; indeed, it nearly ruined the colony, as the bees came in and took all the honey they had in the hive before we noticed the robbing was so serious. I mention the above fact to warn others to be careful of wooden or leaky feeders. This spring we intend to try large deep pie-tins, just shoved under the brood-frames, as we shall have to feed some. As our colonies are all set up an inch higher than in summer, we can take down a side board and shove the pie-tin under, first laying in the pie-tin a cotton cloth to make footholds for bees to walk out and in. A large pie-tin will hold from two-thirds of a quart to a full quart, and can be bought for three cents each, and will last a lifetime.

Roseville, Ill. MRS. L. C. AXTELL.

[Your suggestion in regard to why queens are destroyed after being clipped are, some of them, new to me; but I think you are no doubt right, my good friend.—I am glad to see that you agree so nearly with Dr. Miller and others in this matter of uniting weak colonies in the spring. A weak colony that is making progress, and is pretty surely building up, should be let alone. Two queens (in a very little time at least), will produce more brood than one queen; and if they are doubled up, one queen must take the place of two.—I wish to emphasize the danger pointed out, of opening and spreading the brood in chilly weather. It is like taking delicate plants from the greenhouse and putting them out into the frosty air.—Yes, the bee-keeper should plan certain kinds of work to be done when the honey does not happen to come.—Probably Prof. Cook can tell you the cause of the honey-dew on your house-plants, from the description you give.—Yes, I know that a tin pan can be made to answer the purpose of an expensive feeder; and this is the point I had in view when we made the machinery for making our bread-pan feeder. It is some trouble to fuss with cloths, etc. One day I found the women-folks washing out a lot of cloths that had been used over the tin-pan feeders. I soon figured up that the labor of washing them was more than the cloth would cost in the first place. Of course, where one has nothing else to do this might not be so bad; but we should be careful about letting hired help do work that costs more than it comes to. If you put your pie-plate feeders under the frames, there is a way to manage without being annoyed by the cloths at all. Have your pie-tins made just as large as the bottom of the hive; then have the sides reach high enough so that, when filled with syrup, the lower part of the frames will dip into it. A bee will never drown in such a tin pan as this, and you can fill it up by pouring the syrup on top of the frames, so as to run down between them. You want to have the lowest side of your tin in sight, however, so as not to get so much syrup in as to run it over. We have used such feeders very successfully; but it is a little trouble to get them out of the hive when you are through with them, unless your hive has a movable bottom-board. In that case, an assistant can lift the hive while you take out the feeders.]

HONEY FOR EXHIBITION PURPOSES.

A STANDARD NEEDED.

Mr. Root:—At the convention in Albany, the desirability of a standard of comparison in awarding premiums on bees at fairs and expositions was touched upon. It is a good idea, and I have long thought that a similar standard, or scale of points, should be furnished the judges of honey at such exhibitions. Better justice would be done exhibitors, awards being many times made without intelligent inspection. That is to say, they are made (with the best of intentions on the part of judges) in an off-hand manner. A case in point occurred at a State fair. After an award had been made upon a specimen of comb honey, some of the other exhibitors decided to examine it, when it was found that the case contained a few sections of white honey while the remainder was dark and inferior. The case was closed, and nothing, so far as I am aware, was ever said; but certainly the superficial examination of the judge resulted in injustice to exhibitors of better honey. If the idea should meet with approval it is perhaps not too late to induce officials to put it into the premium lists of fairs and expositions to take place during the coming summer and fall. Brought thus to the notice of bee-keepers it would have an educational value, the effect of which would appear in the better grading of honey for market. I submit the following scale for amendments:

HONEY— { Color, 5.
Body, 5.
Flavor, 5..............15.
COMB— { Straightness, 5.
Color of capping, 5.
Completeness of capping, 5...15
Uniformity.........................10
Style 10
POSSIBLE....................50

By "uniformity" is meant the closeness of resemblance in the sections composing the specimen. "Style" includes the attractiveness of section and case, also absence of propolis.

RECIPE FOR CANNING PUMPKIN, FOR MR. CHALON FOWLS.

Stew and sift the pumpkin, as for immediate use. Add sugar, ginger, and cinnamon, to taste. Return to the stove and add water if too dry. It should be somewhat soft to settle down in the can without air-bubbles, and the water can be evaporated when wanted for use. When boiling hot, pack solid in air-tight cans, and it will keep well.

HOW TO KEEP MOLD FROM CANNED FRUIT.

Perhaps it will not be amiss to make further comment on canning fruit. I have been very fortunate in exhibiting canned fruit at fairs, where many make inquiry as to my method. I very seldom have mold on my fruit, while many with whom I have talked regard it as unavoidable. Mold is a plant. When it is found on canned fruit its germs were either in the can when the fruit was put in or they got in afterward. If the can was air-tight, which can be ascertained on opening it, the mold spores could not have gotten in, and must, therefore, have been in the can when the fruit was put in. The majority of us use the Mason can with porcelain-lined top. They are musty when new from their straw packing, and, when emptied of fruit and stored upon the pantry shelf, there is abundant chance for them to become thickly sown with mold spores floating about in the atmosphere. It is almost impossible to thoroughly clean the tops and behind the porcelain lining. Mold flourishes where it can not be dislodged with ordinary scalding. However, hot strong borax water will destroy the germinating power of the spores, so I *boil* the tops and scald the cans in it the last thing before the fruit is put in. I shall use, hereafter, the Woodbury can, with glass top, made at Woodbury, New Jersey. EMILY E. WEST.

Flint, Mich., Mar. 12.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 183. *Where I live we don't usually have settled weather till well along in April. Sometimes my bees get uneasy early in March. If a warm day comes about that time, would you set out the uneasy ones and let them stay out, or would you put them back after a flight, or would you let them tough it through in the cellar?*

We would not put them back at any time.
Illinois. N. W. DADANT & SON.

If very restless, set them out; then set them in. If not very restless, leave them in until spring.
California. S. R. WILKIN.

"Tough it through in the cellar," but give plenty of ventilation and a drink. They get too dry.
Illinois. N. W. C. MRS. L. HARRISON.

I would take them out if the weather were warm, and let them stay out, unless the weather should turn cold again.
Louisiana. E. C. P. L. VIALLON.

I would let them "tough it" through in the cellar, and not set them out until outside bees were gathering pollen.
Michigan. S. W. JAMES HEDDON.

I would not set them back, and it would be a bad case if I set them out much before the usual time.
New York. C. P. H. ELWOOD.

Set out the uneasy ones, and give them protection with an outer case, and pack with chaff, fine-cut straw, or hay, or an equivalent.
Ohio. N. W. A. B. MASON.

It might pay in some instances to get the noisy ones away from the rest, and sometimes a flight will make them more quiet for a while. In such instances it will pay to take them out for a fly, and return. Early in March would be too early to leave them out, here.
Wisconsin. S. W. S. I. FREEBORN.

I think I would try to cool them off somehow, and let them remain until after the next cold spell; that is, for this latitude.
Wisconsin. S. W. E. FRANCE.

Give them water, and leave them in the cellar if they are healthy. But if they have diarrhea, setting them out for a flight, and returning them, might give them relief.
Vermont. N. W. A. E. MANUM.

Sometimes, and sometimes. If they were daubing things up I should incline to set them out for a flight, and put them back again. If they were tidy I think I should make them stay where they were, somehow or other.
Ohio. N. W. E. E. HASTY.

I don't feel entirely sure about it, but I think I'd let them tough it through. Last spring mine got that way, and I made a fire, heated the cellar, then opened every thing wide at night, and by morning they were quieted down.
Illinois. N. C. C. MILLER.

In my climate, let them "tough it through in the cellar." There is nothing gained by toting out and back again. If it is really necessary to put them out I would let them "tough it" outdoors.
New York. E. RAMBLER.

If I could take the uneasy ones out without disturbing the rest, I would give them a fly and return them. Usually this can not be done, so it is best to let them take their chances in the cellar.
Illinois. N. C. J. A. GREEN.

If I could not quiet them by cooling off the cellar—opening up cool nights—I would take the uneasy ones out and return them after a good flight. I do not believe this wise or necessary if we are cautious in our management.
Michigan. C. A. J. COOK.

If the above party would give his location, his question could be answered more intelligently. It appears to me, that, if I were a cellar winterer, I would try to quiet my bees in some manner until it was time to set them out for good. A saturated sponge on the entrance or on top of the frames answers the purpose sometimes.
Ohio. S. W. C. F. MUTH.

After trying all the plans yet devised for wintering bees in safety, my idea is this: Put the bees in the cellar early; keep the temperature at from 43° to 45° while they are in the cellar, and leave them undisturbed till you are ready to set them out for good—say when the pollen from soft maple and elm is being gathered by bees left on their summer stands.
New York. C. G. M. DOOLITTLE.

If the bees become uneasy in the cellar, and a bad condition is likely to result from it, they may be benefited by setting out on a warm day for a flight. But unless the weather *is* warm they will be damaged instead of benefited. Upon the whole the chances are about as good to leave them undisturbed until the weather is warm enough to set them out and leave them. If set out early, put back again, *especially if light.*
Ohio. N. W. H. R. BOARDMAN.

[Well, friends, I am a little glad to notice that you do not recommend very strongly carrying bees out and putting them back again, and I believe I agree with you. In fact, I think I would not take them out and put them back, even if it did no good. And, by the way, I still think that, for localities like ours, I would not have any cellar or any out or in about it. When Ernest brings his bees out of his cellar, however, I may have more faith, for the past winter has been a trying one.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MASTER LELAND IVES ROOT,

CARE OF GRANDFATHER AMOS IVES ROOT,

MEDINA, MEDINA CO., O.

My dear Leland Ives:—Unless you have an imagination beyond the ordinary, you can not imagine my delight at hearing from you. I am especially gratified that you have chosen for your stopping-place the home of my very dear friends, Mr. and Mrs. E. R. Root. As you become better acquainted with them I am sure you will like them. Demure as Mr. E. R. no doubt appears to you now, when he becomes better acquainted that little stiffness of manner toward you will disappear, and I think you and he will be very fast friends. Being so very nearly the same age, it is not strange that a warm intimacy should exist between him and me, and our mutual friendship for you will bind us still closer together.

Please give my love and best wishes to your host and hostess, also to your grandmother and grandfather, also to the circle of uncles and aunts. Yours as of old,

C. C. MILLER.

P. S.—Do be careful of your health, my dear fellow, and take particular care to wrap up well when you go out. Don't go in the mud without your rubbers. Have you seen A. I.'s windmill?

A BILL BEFORE THE MICHIGAN LEGISLATURE TO MAKE THE SPRAYING OF FRUIT WHILE IN BLOOM A MISDEMEANOR.

Mr. Root:—Please announce as early as possible in your paper, that there is a bill before the Michigan Legislature, which, if enacted, makes spraying fruit while in blossom a misdemeanor. There is some opposition on the ground of justice to fruit-men. Yet our State Horticultural Society and a second large association, the "Grand River Valley Association," have unanimously resolved urging the passage of the bill. Please urge all fruit-men to petition their senator, and the State legislatures generally, to vote for and pass the bill. The petitions should come from fruit-men. They are interested in preserving the bees, as well as are the bee-men. All well-informed fruit-men believe this fully.

A. J. COOK.

Agricultural College, Mich., March 27.

[We are exceedingly glad to see you moving along in this matter, especially as the State of Illinois has already got the matter well in hand. See page 326.]

HOW TO TELL ADULTERATED WAX.

What is the best way to tell adulterated beeswax, and in what way does grease or paraffine injure wax? J. H. A.

Andes, N. Y., Feb. 10.

[Friend A., we detect adulteration by the smell, and by chewing the wax. Beeswax and tallow will make very fair chewing-gum. But wax alone will crumble all to bits, and can not be chewed—at least very long. The addition of paraffine has somewhat the same effect; and even a very little paraffine makes the wax melt at a much lower temperature, so that it is entirely unfit for foundation. If the sample in question should, with very mild heat, become soft and mushy, you may suspect paraffine. Beeswax, however, is tough and leathery, and easily rolled at a temperature where paraffine would have no toughness at all.]

ILLINOIS STATE BEE-KEEPERS' ASSOCIATION.

The Illinois State Bee-Keepers' Association was organized on the 26th day of February, 1891, at Springfield. It officers elected were:

President, P. J. England, Fancy Prairie.

Vice-presidents, Mrs. L. Harrison, Peoria; C. P. Dadant, Hamilton; W. T. F. Petty, Pittsfield; Hon. J. M. Hambaugh, Spring; Dr. C. C. Miller, Marengo.

Secretary, Jas. A. Stone, Bradfordton.

Treasurer, A. N. Draper, Upper Alton.

A constitution was adopted, fixing Springfield as its principal place of business. Thos. G. Newman, of the *American Bee Journal*, was made its first honorary member.

Its executive committee are the president, secretary, and treasurer. The meeting at which the organization was formed was one of enthusiasm, and all seemed to feel that a day had been profitably spent. Adjourned at a late hour, to meet at the call of the executive committee. JAS. A. STONE.

Bradfordton, Ill., March 29.

WHICH IS THE CHEAPER—GRANULATED OR COFFEE A SUGAR?

I had occasion to buy a barrel of sugar for feeding bees yesterday, and intended to buy A sugar. The wholesaler asked for what purpose I wanted it, and, after saying for feeding bees, he said I wanted granulated, as there was more sugar for the money. Their sales of sugar, as he showed me by their books, run 5 barrels of granulated to 1 of all other kinds. Granulated is 6 per cent water, A 19 per cent. They had yesterday morning 27 carloads of sugar. I write this as I was intending to try A sugar as you sometimes use it. It is an easy matter to figure out the cost of *sweet* by using the percentage given. F. A. SALISBURY.

Syracuse, N. Y., April 2.

BEES ALL RIGHT IN THE CELLAR.

Bees are quiet yet, and seem to be all right in the cellar. Clover seems to be in good condition yet. Prospects are good for this season. I am not discouraged yet. I am building a shop 16x24, two stories, in hopes of a good crop this year. N. STAININGER.

Tipton, Iowa, March 26.

CATCHING FISH THAT WEIGH OVER 100 LBS., WITH A HOOK AND LINE.

Inclosed find a tarpon scale, taken from a tarpon caught by John D. Wattles, of Philadelphia, publisher of the *Sunday-School Times*. This fish was taken with a rod and reel, measured 6 ft. 6 inches, and weighed 130 lbs. Another was caught to-day by Leslie Pell Clark, weighing 110 lbs. The silver on scale is all that shows on the fish, giving it the name (by some) of Silver King. Bees are booming.

Sarasota, Fla., March 21. S. C. CORWIN.

DRAINING THE CARP-POND.

Tell Huber he should have been here in November when we drained our carp-pond, to help to take out the thousands of carp, from two inches in length to 20 inches. We now have them in one supply-tank, 10x10 ft., by 10 ft. high;

and some of the large fish we have in a low tank, so we can get them to eat. We had a nice one for Christmas dinner. G. J. KLEIN.

Conrad Grove, Ia., Jan. 24.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

COMMON DRAIN TILE FOR CARRYING EXHAUST STEAM IN HOT-BEDS.

When I first thought of this I greatly feared that the dampness and wet of the steam would keep the hot-bed not only warm, but wet and soggy; that is, where steam is run through tile of only one-foot lengths, every joint permits the steam to get out more or less; but to my surprise and joy I found it just the other way. The ground dries over the tile a good deal as it does over a hot-air flue. Where the tile runs under a pathway between the beds, the ground is dry, even now while it is raining. The exhaust steam warms perfectly a string of beds 6 feet wide and 250 feet long, and the waste steam goes out at each end—enough in quantity to do considerable more work if needed. Strawberry-plants are now in bloom; corn and beans are doing nicely, even though we have had the most severe weather of the winter within the past two weeks. There has been no lack of bottom heat; but once or twice, when we omitted to ventilate promptly, the whole bed got so hot that some of the plants were injured slightly.

A NEW WAY OF VENTILATING HOT-BEDS AND COLD-FRAMES.

Now, it may not be new to the rest of you, but it is new to me. Instead of pulling the sash off, or even tilting them, simply spread them two inches apart. When placed thus, there is nothing that can be injured by the heat of the sun, neither is there any danger from quite a freeze; and in transplanting it gives the best results of any I have tried—that is, unless the sun is very hot. If we strip the sash clear off, the sun and wind would often dry up the ground too rapidly, and the plants look shriveled. A drying wind is rather worse than the sun. Now, by spreading the sash as I have mentioned, the wind is practically excluded, and yet the plants have a free circulation of air—almost equal to outdoors. But for some reason which I do not quite understand, these separated sashes almost always have more or less dew on the under side of the glass. Sometimes the quantity is so great that it falls in drops on the plants underneath, and with this amount of dampness they do just boom. To-day is the last day of March, and we are having a veritable April shower.

TREE TOMATOES.

As considerable has been said about these in our catalogues and some of the papers, we have thought best to give an extract from a little circular, as follows:

HOW TO GROW THE WM. MANSFIELD TREE TOMATO.

Get some rich old earth for boxes in your house, hot-bed, or greenhouse; sow seed, cover lightly, wet down well every day, keep warm with all the sun possible. When up ten days, transplant to other boxes, six inches apart, in dirt not less than four inches deep. Keep them wet, give all light and sun you can; and by the time it is safe to set them in the ground outdoors they should stand from twelve to twenty-four inches in height, with bodies one-half inch through.

Now for the ground, and how to prepare it. First select a spot as near your water as possible. Let your rows run east and west. Throw out dirt two spades deep, then put in three or four inches of night soil, if you can get it. If not, use hen manure and wood ashes, equal parts, or some other strong manure in the bottom of trench. Then fill up trench with the best dirt you can get, well mixed with old rotten stable manure; there must no strong, new, raw manure come in contact with the roots nor bark above the ground, as it will destroy them; but from bottom of the trench it is safe, and will throw up strength for the whole season. Now your ground is ready. Set out your plants (without disturbing any of the dirt around the roots) about eighteen inches apart; have the dirt in your trench a little lower than the sides. Have a strong stake for each plant, or a trellis, and tie them to it as fast as you set them. Water immediately, and ever after. Run a trough or small ditch from your pump to your plants; and every day, unless it rains, send a stream of water into the trench where your trees are set. Hard water, soft water, cold or warm water, are all right if they only have enough, either from the clouds or pump about once every day. As your plants begin to grow, just above each leaf will start a sucker. Let the top of plant, and only one or two of the best top branches grow so that you have not over two or three stems to run up. Now, by close observation you will see always that the buds for blossom show themselves on the tops of the trees, and a few inches below them; and just above each leaf the sucker starts. Nip off every one of these just as fast as they appear; also, as the lower leaves get brown and old, pick them off. Train the fruit as it grows, to the sun. Tie often and well. Let no useless wood grow. Give all the sun possible, and water, water, water—then you will be able to pick ripe fruit of the finest quality from about the Fourth of July until frost comes.

Johnsons Creek, Wis. WM. MANSFIELD.

The writer of the above has been, so he says, working for a new strain of tomatoes, to be grown like trees, for the last twenty years. During 1890 he said he had trees eleven feet high, bearing tomatoes weighing 2 lbs. 6 ounces. There is one thing in favor of these tree tomatoes, or tomatoes trained on stakes: The hens do not touch them, and they never get soiled or muddy. During the past season it was quite a task to wash and wipe perfectly clean our choice Ignotums. It would probably be rather late now to sow the seed, if you want *early* tomatoes. Very likely our friend Mansfield has plants to sell, for those who wish to try them the present season. We do not see any thing about the price of seed or plants in the little pamphlet from which the above was taken. I think the *Rural New-Yorker* stated recently that *any* tomato would make a tree tomato if tied to a pole, and trained and directed as above. During a dry season I am inclined to think the directions given—"water, water, water," a great help, provided we have the sunshine to go with it.

HOW BOOKS HELP.

I received the books I sent for, and I must say it would have been dollars to me if I had known of the A B C of strawberry culture. We bought a small farm near the city of Alpena, two years ago. There was something over an acre of strawberries on the farm. They did fairly well; but not knowing any thing about the care of strawberries we did not manage right. My husband is a sawmill man, and I do the farming with the help of a boy 18 years old. We are two miles from the city. I send the berries in three times a day through the busiest of the picking.

MRS. A. E. MONTAGUE.

Alpena, Mich., April 2.

TERRY'S STRAWBERRY CULTURE.

The strawberry book is a jewel. Every farmer should have a copy, especially if he has children. Friend Terry should live in California, where he can have strawberries at least seven months in the year, and some, I hear, do better than that. One great secret of his success is his thorough cultivation, especially after every rain, which causes the ground to retain moisture. Many farmers east make a mistake in thinking no need of cultivation unless there are weeds to kill. Here in this long season of dry weather we easily see the benefits of cultivation, which is, practically, mulching the ground with fine earth for retaining the moisture. The harder the rain the harder the ground is packed; and the quicker it dries out, comparatively, unless cultivated.

Lakeside, Cal., Mar. 23. F. C. Crowell.

OUR HOMES.

Lord, when saw we thee a hungered, and fed thee? or thirsty, and gave thee drink? When saw we thee a stranger, and took thee in? or naked, and clothed thee? Or when saw we thee sick, or in prison, and came unto thee?—Matt. 25:37–39.

I had it in mind to write something this time in regard to the happy surprises that are continually falling to the lot of the faithful, earnest Christian; and then the next thing was, to find a text which embodied the thought. When I found it in my well-marked Bible I saw the very text I wanted was already so plainly outlined with a pencil that it must have been used before. Never mind; I think it is just what I want to-day.

For several years before I accepted Christianity, one of the uppermost thoughts in my mind (perhaps I might say *the* uppermost) was, that the world was not giving me due credit. I would say to myself, and even to my friends, "Here, I have invented this, that, and the other, and here it is described in this and that bee-journal, and no credit given me whatever." Again, I would dwell on the fact of what I had done for different people, and not a word of thanks, and no expression of gratitude. Dear friends, did you ever get into this attitude of mind? I might go on giving you quite a list of the ways in which I used to think I was not getting my just dues, or did not have a fair chance; but the subject is so painful to me, and, in fact, I feel so much ashamed to think that I ever cherished such ungratefulness and such preposterous egotism in my heart, that I would fain let it drop. I remember once of a distinguished lecturer from some of the great cities, who visited our town. Some friend brought him into our establishment, and introduced him to me. Now, here was an excellent opportunity for me to *hear* a great man talk. But I remember quite vividly how I occupied the whole fifteen or twenty minutes he stayed at our establishment, by telling him what wonderful things *I* had done. In fact, I hardly gave the good man an opportunity to say any thing himself at all, even had he been so disposed. Very likely some of you will say, "Why, my good friend Root, are you quite sure you have entirely gotten over that trait of character even now?" I know very well, my friends, I have not. It is not an easy thing for anybody to get *entirely* out of the ruts and failings that have clung to them for a good many years. The grace of God has helped me, however, so much in this respect that I feel as if I wanted to tell you something about it.

Before I became a Christian, if anybody trod on my toes, or trespassed upon my rights, I was ready to fight, or to go to law, without a moment's warning; and the saddest part of it was, that a good many times I imagined they trod on my toes purposely, or trespassed on my rights purposely, when they had no such thoughts or intention. By the way, do you know of any thing much sadder than to have a friend who laments that everybody is all the while trying to steal what belongs to him? It does not matter whether it is the corn in his crib, or the eggs his hens have laid, or even the thoughts of his brain; if he gets into the idea that he has got to fight continually for his just dues all through life, the spectacle is a sad one. A great part of the exhortations of God's holy word are exactly to the contrary. How many texts do you suppose I could quote right along on this line? "Cast thy bread upon the waters;" "Give, and it shall be given unto you;" "He that findeth his life shall lose it: and he that loseth his life for my sake shall find it;" "Thy Father which seeth in secret shall reward thee openly;" "Do good and lend, hoping for nothing again."

Before my conversion I was greatly disturbed if people talked about me, especially if they said any thing that was not true, and then I thought it incumbent on me to follow up any such report, and go to the bottom of the thing. When any thing got into the papers reflecting on me, I was ready to fight the editor, and prosecute the man who told the untruth. I remember when a rival in business put in something abusive, and I could hardly sleep the whole night after. Now, please do not think I am bragging when I tell you of how I was helped out of all this "miry clay." Remember, *I* did not do it of *myself*, therefore the credit or the praise can not in any sense belong to me; but to *Christ Jesus* shall we ascribe all the glory and praise. After my conversion I *forgot* about self; in fact, I did not *care* about self. Why should I? The promises of the Bible, without number, exhorted to the contrary. He that loseth his life shall find it. I *did* lose my former life, and I *did* find the new; and this finding of the new life constituted "the happy surprises" that I wish to tell you about to-day.

In a great measure, the *desire* to fight back was gone; and, in real truth, it was *not* very hard to *love* my enemies and to do *good* to them that hated me. I did not find it very hard to do *good* and *lend*, hoping for nothing again, for I was trusting in Christ Jesus, and I fully believed he would take care of the outcome and the result. Many of you who have read Gleanings *know* how it turned out. "When a man's ways please the Lord, he maketh even his enemies to be at peace with him," and it happened *just* so. Many of the pleasant surprises I have had come in the way of kind words from those who have formerly been at enmity toward me. People said I was queer and odd and eccentric, and that they did not understand me at first; in fact, I was not *trying* to have them understand me. I was trying to have them understand *Christ Jesus* and the holy Scriptures. A few days ago our good friend Dr. Tinker paid us a visit. He said to me, "Bro. Root, you may remember that I have not always felt as friendly toward you as I do now. I did not understand you. Since I have become acquainted, and know you better, it makes a vast difference; and there are a good many who do not understand you, even *now*. If they could come here and go all around, and see you when you are at work, they would change their minds, just as I have done."

In that new life, instead of being afraid of being put in the papers, I did not care whether I was put in the papers or not. Now, please do not misunderstand me. Do not imagine that I was one of the "don't care" sort. My *care* was, however, that I should in no way dishonor the Master. I was in great fear every day of my life that I might not be *truthful* and *honest*, and *pure* in *heart*. But after I had worked and prayed through these temptations to be untruthful, or dishonest and greedy, I did not care for the result, for that, in fact, rested with Him whom even the *winds* and *waves* obeyed. Why should *I* trouble myself? Before conversion I was afraid that the great outside world might point out some things about me that I would not have anybody know for the world; but *after* conversion I had nothing to conceal. When there were rumors that something in my past life might get into the papers, I decided, as some of you may remember, to put it in print *myself*, and then I should never be afraid that it might come up at any future time. About this time I was in pursuit of information of a certain character, and was directed to a certain place. My informant added, also, "You had better not be *seen* going there, Mr. Root; for if you are, you may get 'talked about,' and you know *you* could never stand that." And then the bystanders had a big laugh, as they supposed, at my expense. There was a moral to it, however, for every one of them recognized that *all fear* in that direction was gone. My attitude was then, and I hope and pray is still, that, when the truth will do harm, let harm *come*. We read in the 112th Psalm, "He shall not be afraid of evil tidings; his heart is fixed, trusting in the Lord; his heart is established, he shall not be afraid." And then in the 91st Psalm we read: "He shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone."

One of the great hindrances to these happy surprises I have been telling you of is the disposition, not only to lose faith in God, but to lose faith in your fellow-men. And, by the way, there is something really wonderful in the way this temptation to be uncharitable will follow one, and continue to hang to him, even after he has had experience again and again that should teach him better. I have been between fifteen and twenty years battling against this besetting sin of mine. If anybody should ever have learned by abundant experience to look out for danger and delusion right here, I am that one. Let me give you an experience of yesterday:

Circumstances seemed to indicate that a certain individual was purposely planning hindrances in our way. I watched him narrowly, and finally I had proof of it (or at least I supposed I had) in plain black and white. There could be no mistake about it. I had his own handwriting in my fingers. It first gave me a feeling of pain that he should, for any reason, real or imaginary, be so perverse and wicked. Then I began planning unconsciously what I should do to stop it. It disturbed me so I could hardly talk or eat my supper, yet I decided that it was not worth while to trouble my wife about it. Then I remembered the many grievous mistakes I had made just in this line, and I finally submitted it to my wife's better judgment. She said at once, "I am sure you are mistaken."

"But, my dear wife, how *can* there be a mistake? Oh, how I wish there *were* some chance for him! But right here are the *facts*."

"I can not help it. I am sure this friend of ours has not deliberately and purposely done this thing."

I felt a little relieved; but the facts were so straight and clear, I placed the matter before another good friend. This friend said just as Mrs. R. did.

"It can not be, Mr. Root. I do not know what it means, and it is hard to explain; but there is certainly a reason for it that we do not see."

I had decided, therefore, out of respect to these two good friends of mine, that I would ask the one who seemed to be going wrong, for an explanation. I decided, too, to put it very mildly, and to assume, for the time being, that no wrong had been premeditated. What do you think the result was? Why, it was just the old, old story—nothing was wrong at all; or, perhaps I should say, nobody was wrong at all, except my own self, and the bad, uncharitable condition of my own heart. In the piece of handwriting I had looked at so suspiciously there were two little characters I had overlooked, and these made it all plain and simple. Oh how thankful I felt that I had listened to the advice of these two friends, whose minds were in no way biased, as mine was for the time being by my old foe and old enemy. Now, then: Jesus knew all about this. He knew exactly where we should be likely to be tripped and entrapped; therefore he said, as a preventive—as a safeguard—perhaps I might say as a note of warning, "Love ye your enemies; do good to them that hate you," etc., knowing *beforehand* that we should be prone to look for enemies where none exist, and that we should be very likely to imagine people hated us when no such *hatred* existed; so you see that, if we listen to these words of Scripture, we shall, *without knowing it*, escape Satan's snares; and in this way we shall meet with the happy surprises that I have been telling you of. We shall find warm friends where we had been looking for foes, and we shall discover good loving hearts where Satan whispered only envy and enmity existed.

In our issue for March 15, page 226, I published a letter from friend Braley. I did it with a feeling that there had, perhaps, been too many kind words in GLEANINGS, and not enough of the opposite sort. I feared the impression was going out among my good friends that the bee-keeping world were *all* pleased with our establishment, whereas that is not true. There are quite a few who do not agree with the majority, and justice and *truth* demand that they have a hearing. I did not feel unkindly toward friend B., but I felt sorry to know that he did not understand me better, so I replied to him in a footnote. By the way, may I suggest that editors, as a rule, *are* afraid of adverse criticism? We put in plenty of notices in regard to the *value* of our journals, and how well they pay as *advertising* mediums; but when somebody writes a complaining letter, and says he "never got a *cent*" in response to his advertisement, it is a little against human nature to publish it. Now, it seems to me that our patrons have a right to *all* the information we can give in the matter. If we wish to be *honest* and *square* we should give *both* sides; therefore *I* rather enjoy giving *both* sides. Why, bless you, dear friends, it never hurts one nor hurts his business to be *honest*. See the promise in Isaiah 54: 17:

> No weapon that is formed against thee shall prosper; and every tongue that shall rise against thee in judgment thou shalt condemn. This is the heritage of the servants of the Lord, and their righteousness is of me, saith the Lord.

But, please believe me, I had not the *remotest thought*, when I published friend Braley's criticism, that it would be the means of bringing me the kindest expressions of abiding friendship, high esteem and gratitude, that I ever got in my life. Had I been *seeking* praise I could not have invented a better scheme than the one I innocently and unconsciously took, of publishing that letter. In fact, it brought a *series* of "happy surprises," and quite a few from good friends whom I longed to hear from, but whom we could not get to write. I did not feel hurt nor troubled because he accused me of being a hypocrite, for I am greatly afraid that hypocrisy *does* get into my composition now and then; but I certainly was not bright enough to recognize that nothing in this world brings to light one's friends like unjust persecution; and I suspect that herein is one of the truths at the bottom of one of my old favorite texts: "Blessed are ye when men shall persecute you and revile you, and speak all manner of evil against you falsely for my sake." Especially if the one who is persecuted unjustly takes it quietly and pleasantly, and does not say a word back, nor retaliate in any way. May be I am letting out a great secret here; in fact, I rather *hope* I am; for if I can make plain to you the wonderful secrets embodied in the Bible texts and promises—if I can, in short, point you to the *Lamb of God*, who, when *he* was "reviled, reviled not again," why, it is just the work I *love* to do rather than any thing else God has ever called me to in this whole wide world. And now let me finish by giving you some extracts from kind letters that have come since the above was published:

Friend Root:—I have been thinking of writing to you for a long time, as I have good evidence that you still retain recollections of your brief visit with me, and might be interested in knowing about my welfare; but many cares have prevented, and might still do so but for some things which appear in the March 15th issue of GLEANINGS. They "sort o' riled me," and I will refer to them later. Providence has, since my mother's death, granted me a boon which does not fall to the lot of very many, to judge from appearences—a good wife, who is, in the true sense of the word, a helpmeet. Home is, once more, more than "a place to stay;" and I am sure that, if you conclude to come to California again, you will find a happy spot when you visit us. I have about as many bees as formerly, but the strawberry patch has given way to a thrifty young orange-grove, and a three-acre orchard of figs and apricots is growing finely above the house.

Now, in regard to the articles of criticism which appear in GLEANINGS. It does seem a little peculiar that some people do not use more good sound sense in arriving at conclusions; for instance Mr. Braley, who gets the shoe on the wrong foot *entirely* with his "big I." It would seem that the individual who demands that any publication shall be gotten up exactly in the line of *his* likes and dislikes (irrespective of what its other readers may require), bristles all over with egotism, or "big I"-ishness; and in writing as Mr. B. did, he shows about as much consistency as the person who goes to the butcher's shop after beef steak which he *likes*, and proceeds to abuse the proprietor for keeping *sausage*, which he does *not* like. There has been information in the last few numbers of GLEANINGS worth a dollar to *any* bee-keeper; and, for that matter, valuable to all; and if one finds something "obnoxious" occasionally, I know of no law to compel him to read it.

As to Mr. Luther's article, I am also a member of the association mentioned, and was present at the meeting Jan. 8th. I take issue with him. If Mr. L. takes his honey to market and receives a bid of 4 cents, does he consider it "dishonorable" to inform another buyer that he has such an offer, and then sell to him at 5 cents? Certainly not. When business throughout the country is run on principles as nearly parallel to the Golden Rule as is A. I. Root's, we shall be a long way nearer the millennium than at present. S. B. WOODBERRY.

Verdugo, Cal., Mar. 23.

Dear Bro. Root:—I feel it my duty to address you to-day as a Christian brother; and if we do not buoy each other up in this Christian warfare, and fly to each other's assistance, we do wrong, and I consider it a sin. God is our refuge and ever present help in trouble. I believe it; but we do like our fellowmen to understand why we so talk, why we so act. But they can not and will not, and then fling mean and small words at us. How can a Greek and Frenchman understand each other's language? How can one who is not a Christian know of the love that God has placed in his soul for Christ and his fellow-men? But to know and feel that you act and say all for Christ's sake is a great blessing in itself.

I have, as an officer in my church of 300, given my views most emphatically against all fairs, banquets, and concerts in God's house, to raise money to carry on his cause. I don't believe in it. The Holy Spirit moved me to take this stand, so very contrary to my former views, that it has called down from the members such words as to trouble me; but I can stand with Christ's aid, as I know it cometh not from the Devil, but from Him who gave his Son for us. The power of the Spirit worketh wonders; and I desire it, oh so much! Now, this sympathetic bond is why I write to you. After reading Mr. Braley's letter, page 226, I feel that you must want some sympathy. It relieves me to give it. They don't understand you. Let them talk. It makes you stronger for Christ's service. It all redounds to the glory of Christ. You are a great instrument in his hand. Your Home Papers have ever been a helping hand to me in my business, in my prayer-meeting, and in my home; and I shall pray now for you and yours, that you may continue to serve Christ in your way, under the guidance of his Holy Spirit, all your days, and at last be united with Him who loves you—loves *you*—more than you ever dreamed of, and has now a place ready or prepared for you. This letter requires no answer, and is not for publication.

The last brother who writes, says the letter is not for publication; and it is quite evident to all that he had no thought of its being used in that way when it was written. I trust, however, he will pardon me when I tell him that it strikes the point I wish to illustrate, much more fully than any of the other kind letters received in answer to our good friend Braley.* Perhaps I should also apologize to our readers for permitting any thing to get into print containing such extravagant praise of myself as the last few words. But it is these few words that bring out the wonderful truth in the text I have quoted: "Blessed are ye when men shall revile you and persecute you," etc. Now, please note, the blessing is promised when this persecution is *unjust* or *untrue*, and when it comes *because* of Christ Jesus, or for *his* sake. If you are guilty of some wrong act, and you are persecuted and reviled because of that, no blessing is promised. It is only when we are entirely innocent. And, now, please note again, the greater the injustice you suffer, the *greater* will be the blessing. Many of you, probably, will refuse to believe this; but see how it has been verified in my own case, in the promise before us. Friend Braley said some spiteful things about me, because of the Home Papers, because I, in my poor way, *tried* to hold up Christ Jesus as an example for the world. Did it hurt me? or did anybody think the less of me? Quite the contrary. It stirred up friends from the Atlantic to the Pacific, and induced many to write encouraging words who probably would not have said *any thing* otherwise. Several have seemed to fear that I might be induced to drop the Home Papers, and sent in vehement protests and kind words like those I have given you. The 22d and 23d verses of the 6th chapter of Luke contain some words that have always seemed to me to be a little extravagant—at least, I have been tempted to think there might be some mistake about it. They are as follows:

> Blessed are ye when men shall hate you, and when they shall separate you from their company, and shall reproach you, and cast out your name as evil, for the Son of man's sake. Rejoice ye in that day, and leap for joy; for, behold your reward is great in heaven; for in like manner did their fathers unto the prophets.

The words I allude to are, "Rejoice ye in that day, and leap for joy." What a contrast! My friend, if you have ever lain awake nights because somebody accused you of something of which you were entirely innocent, do not do so any more. Have faith in the Bible promises. If there is any *truth* in the unkind words, then bestir yourself to make them *untrue*. If somebody has accused you of something that you never did at all, look into your own heart and see whether you ever *thought* of so doing. If you did, there is where you are to fight your enemy. Jesus said, in connection with this very thought, "But I say unto you, That ye resist not evil." Do not trouble yourself about the evil at all, and do not waste your energies in even making a reply. Turn all your thoughts, and do all your fighting, against the evil in your own heart. *Keep busy* in resisting every encroachment of the evil one, and then shall come these happy surprises that I have been telling you about to-day. Then will you feel like saying, when the dear Master sends you—yes, here in this world—more wonderful blessings than you ever thought of or dreamed of—

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* Perhaps I may add, that the writer of this last letter has been well known to us for several years. Ernest and John have met him personally, but we were greatly astonished, all of us, to receive *such* a letter from one whom we had hardly any reason to suspect was even a professor of religion. And may I just drop a word of caution right here to our brother in regard to church fairs? Even if he is wholly in the right, would it not be well to heed the injunction, "Not by might nor by power, but by my Spirit, saith the Lord of hosts"? These things are much more easily set right by a loving and gentle hand.

Lord, when saw we thee a hungered, and fed thee? or thirsty, and gave thee drink? When saw we thee a stranger, and took thee in? or naked, and clothed thee? Or when saw we thee sick, or in prison, and came unto thee?

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one. because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

OBJECTIONABLE PICTURES IN PACKAGES OF TOBACCO.

Mr. Root:—I inclose with this two pictures given to me by men in the shop where I work. They come in papers of tobacco that are sold to anybody who wants them, old or young, and are circulated everywhere. No doubt you will find the boys, if not the girls, in your schools, are too well acquainted with them. I believe they are supposed to represent theatrical costumes, and may be inside of the law; but if so, the law needs to be changed, and I thought perhaps you might be able to start an effort in that direction.

New Jersey. B. C. W.

[Now, then, if there is any man (of course there is not a woman) who would defend the use and sale of tobacco after the point made by our good brother in the above, we should be glad to hear from him. The very fact of itself, that evil, vicious men have chosen tobacco packages as a vehicle for their infamous work, is enough to condemn it. The Christian man (or, perhaps I should say, the professors of religion) who sell tobacco, knowing that the packages contain these objectionable pictures, should hide their faces in shame if they do not give up at once and for ever this traffic. The plea that there is money in it is no excuse at all, but rather the contrary. A good friend of mine who got hold of some of these vile sheets, put them in a letter and mailed them to a grocer who advertises prominently that he makes tobacco a specialty. She asked him if he could consistently sell any class of goods that included things of an immoral tendency like these, telling him at the same time that the pictures she inclosed came out of the packages of tobacco bought at *his store*. At the present writing he has never made any reply whatever.

Bro. W., you are right about it. If these things are not against the law, the law certainly needs *mending*. Only last week a Medina Co. boy was arrested for printing and sending out obscene literature made on a little amateur press. I was told that the full penalty of his crime would be five years in the penitentiary. His father got him clear, however, by the payment of $500. This boy scattered his infamous productions among the schoolchildren. Now, if it is five years in the penitentiary for printing and disseminating vileness and obscenity, why is it that our tobacco-dealers (providing they have no conscience) are allowed to go scot free in this matter of putting out, with their tobacco, obscene pictures? The pictures are exactly the kind calculated to stir up the worst and the most dangerous passions in human nature. I know by experience the extreme harmfulness of like pictures—pictures shown me by thoughtless or vicious schoolmates, which have haunted me—or at least the memory has—through life. And even since I have become a Christian I have prayed again and again that God would wash away and obliterate the recollection that has followed me for toward forty years.

Friend W., I thank you for the confidence you place in my ability to do something in this line; and may God help us to use our privileges. If Prof. Cook, Dr. Mason, Dr. Miller, R. L. Taylor, and a host of others whose names have weight, would start a petition to make it a penalty to put this stuff in tobacco packages or anywhere else, I think there is no doubt but that we might succeed. Our excellent Postmaster-General, Mr. Wanamaker, is wide awake and in dead earnest in excluding every thing of this kind from the *mails*. Therefore the enemy is making every attempt to reach boys and young men through other avenues; and with satanic aptness and ingenuity, they have decided to put it in *packages* of *tobacco*. May God help us.

My son, Wiley H. Barbee, has quit the use of tobacco, and he thinks he is entitled to one of your smokers. If you think he is worthy of one, please send it to my address, and I will see that he gets it. DANIEL BARBEE.

Glenwood, Ia., Feb. 26.

Please send a smoker to Albert Donaldson, Courter, Miami Co., Ind. He has quit the use of tobacco. If he ever uses it again I will pay for the smoker. I have not broken my pledge yet, and never expect to. CHAS. CRANING.

Courter, Ind., Jan. 26.

Through the influence of the Tobacco Column I have concluded to quit the use of tobacco. If you will send me a smoker I will never use the weed again; but if I should fail to keep my promise, and ever use tobacco again in any form I will pay you for the smoker.

Morgan, Ky., Feb. 23. HENRY C. CLEMONS.

Inclosed find $2.00. Take enough out to pay for a Clark smoker, and the rest apply on GLEANINGS. The smoker is one I ordered sent to a man some time ago who had quit the use of tobacco; but as he has broken his pledge I shall have to pay for the smoker or break *my* pledge. E. C. EAGLESFIELD.

Berlin, Wis., Feb. 26.

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.

Great peace have they which love thy law, and nothing shall offend them.—Ps. 119. 165.

On account of the quantity and excellence of available matter we enlarge again to 52 pages. Be sure to read the discussions pro and con on fixed distances and wax secretion in this issue.

The advantage of having a practical bee-keeper in the halls of our legislatures is illustrated on page 326. A few such laws will have a wonderful educational influence in favor of our pursuit.

During our spare evenings we have been reading with profit and delight the "Mysteries of Bee-keeping," by Quinby. We have been charmed with the magnanimous spirit of Father Quinby.

We must really apologize for calling our friend George H. Ashby, of Albion, N. Y., George H. Ash*mead*, in our N. Y. State convention report. The former says he has been getting a great many letters directed to the latter.

Fixed frames have been and are used in England almost exclusively, among bee-keepers; and in looking over the back volumes of the *British Bee Journal* we noticed that our British cousins have tested and tried almost every thing conceivable in the line of fixed distances.

We have just had a call from Mr. R. F. Holtermann, who has recently attached himself to the bee-keepers' supply department in the firm of E. L. Goold & Co., Brantford, Ont. Mr. H. was former Secretary of the International Bee-keepers' Association. He is a bright and progressive bee-keeper, and will be a valuable addition to the Brantford firm.

One of the biggest pieces of folly is to send for bees long distances, by express. You can just as well get improved strains by getting queens by *mail*, and introducing them into your hybrid or black stocks. Haven't got any common bees? Buy some of a neighbor—that is, if you want to start in bee-keeping; get a few hives in the flat, of your nearest supply-dealer, and then get your pure Italian stock by mail, wherever you like.

Hope is the word engraven on the heart of every bee-keeper at the beginning of every season. "We are going to have a good season this year," and so preparations are made. Without hope or expectancy there would be no preparation, and consequently no honey crop. Without bees and proper appliances at the right time, a big honey-flow does not amount to much; and so it behooves us to be ready for whatever may come.

Our yellow five-banded bees were the first to be numbered among the dead in winter losses. Our apiarist says the three colonies we had of them had evidently died very early in the winter. After all, it may have only *happened* so; but still there seems to be a sort of opinion prevailing, that the darker bees are better for wintering and better for honey. The next two years will tell us more about it. A. E. Manum attributes his successful wintering largely to his leather-colored strains.

The Hubbard section-former is a good machine—the best of the kind we know of. We let the one we had in use go for an order—the only one we had, and, oh my! what a scold the girls made! They didn't like to go back to the old way of folding sections. We now have plenty in stock.

"Some patent-hive men," says a correspondent, "are like a dog with a bone that has no meat on it—ready to snarl and bite, the more especially when the bone is entirely worthless." This is a very true saying. Does some patent-hive man take offense at this? Well, he mustn't put the shoe on, if it doesn't fit. Observe that he doesn't say *all* patent hive men "are like," etc.

Mr. F. H. McPherson, of the *Canadian Bee Journal*, whose fall upon the ice was mentioned recently in Stray Straws, is still unable to resume his duties, and is at present under the medical care of an eminent physician in Toronto. The accident was more serious than was at first anticipated; but it is hoped that, with a complete rest for a time, he will soon be himself again. We extend our sympathies to Bro. Mac.

Perhaps some of my friends may accuse me of playing second horn for Mr. Elwood and Mr. Hoffman. Well, if I am, I am in good company. They are both intelligent and extensive bee-keepers, and they have no ax to grind. Outside of their general interest and the welfare of the pursuit, it matters very little to them whether their suggestions are adopted or not. E. R.

Quite by accident, this seems to be something of a topical issue. Notice the discussions, pro and con, on wax secretion, and on fixed distances. No more valuable subjects could be discussed than these. On the solution of the wax question hinges the much or little use of foundation, or the value of a surplus of empty combs. It may not be possible just at present to settle the fixed-distance question; but the discussion shows how honest and good men see things differently.

We have received scores of congratulations from friends and bee-keepers all over the country, over the advent of our Easter offering, a baby boy, Leeland Ives. To one and all we extend our hearty thanks. You will pardon us, but we want to copy a little bit from a letter from Mr. Elwood, who, after extending his congratulations, adds:

> Speaking after the manner of bee-keepers, I trust you will find that a moderate increase is not only best in securing to you the greatest amount of the honey of life, but equally good in maintaining the old stocks in the greatest vigor. P. H. Elwood.
>
> Starkville, N. Y., April 4.

DEATH OF MR. COWAN, SON-IN-LAW OF L. L. LANGSTROTH.

Dear Friend:—My son-in-law, Hugh C. Cowan, left us this Sabbath morning for the better world. His health gave way more than a year ago, and for the last few months he has been confined to the house. His disease was consumption. He died in the blessed expectation that, when absent from the body, he should be "present with the Lord."

Yours affectionately,
Dayton, O., March 22. L. L. Langstroth.

Dear friend, it is not a sad thing to die when one dies in the blessed faith, as mentioned in the above. Neither is it, in one sense, a sad thing to bid adieu to these friends—certainly not when we think of what severe trials it must be to those who live and die without any faith whatever in a kind and loving Providence. May God be with you and sustain you all, as I know he will. We are very glad, friend L., to know that you are feeling well enough to send us this message.

LOOK OUT FOR THEM!

Some time in November last we received the following:

> *Mr. A. I. Root:*--Please send us ten copies of A B C of Strawberry Culture, by Terry, at your earliest convenience, and at lowest rate.
>
> Our Country Home.
>
> 88 Fulton St., New York, Nov. 12, 1890.

Along with it came a very neat-looking rural paper, styled *Our Country Home*, affirming that they had a guaranteed circulation of over 100,000 copies monthly. We therefore filled the order. Since then we have sent repeated statements, and finally drew on them, as a last resort, telling them that we should publish them unless they settled up their little account of $2.05. As they do not even yet so much as "peep" by way of reply, we think best to give this caution. Perhaps we might add, that neither Dun nor Bradstreet quotes any such institution.

NO MORE HELP WANTED.

Please do not write us asking what the "chances" are for employment in our establishment if you move to Medina. It is not possible for us to give places to a quarter of the applicants right here at home, and I have repeatedly so stated in our county papers. Notwithstanding, people do move here and bring their families, sometimes waiting a year, and, in one or two cases, even two years, for a possible vacancy. Then they move away, and I fear they sometimes feel hard toward me. In view of this it seems to me the kindest thing I can do is to tell you that we have quite a bookful of applications all the time. If these people who apply for places were skilled mechanics in almost any line of trade, the prospect would not be so poor. But I believe that skilled workmen in any department usually have plenty to do, with good pay. I do not know what is going to happen to our people if this matter of serving an apprenticeship and learning a trade is to be abandoned entirely.

THE MICHIGAN FARMER, ON BUCKWHEAT.

An exchange says:

> The *Michigan Farmer* says that "it is very apparent that Japanese buckwheat is not going to take the place of American varieties." This conclusion is based, in part, on the experience of a correspondent who says, "The flour is dark, and will not bake good cakes;" and he can "sell it only for chicken feed." He adds: "I have raised it for three years, but am through now."

In commenting on the above, friend A. C. Bugbie, of Lochiel, Ind., asks us:

> What do you think of this? I have raised about 1500 lbs. of buckwheat flour this winter, raised from the Japanese variety, and it is of prime quality.

Well, friend B., I will tell you what I think the correspondent of the *Michigan Farmer* had better do. I think a change of cook for three years, rather than a change of buckwheat, would change his mind in the midst of these changes. The Japanese flour has been used, not only in our lunch-room, but all over Medina, for two winters past; and, besides that, we have reports from it from almost all over the world, and it certainly is not true that the flour made from it is in any respect inferior to the common.

A VISIT FROM MR. PARKS, OF THE G. B. LEWIS MANUFACTURING CO.

We have just had a very pleasant call from Mr. Chas. E. Parks, who is manager and largest stockholder in the G. B. Lewis Co. at Watertown, Wis. He has just been on a business trip to New York. On his return home he stopped at W. T. Falconer's, in Jamestown, N. Y., and after making them a call he dropped in upon us unexpectedly. Mr. Parks is a man of business, and a hustler. We were somewhat surprised to learn that they were turning out from 100,000 to 120,000 sections a day. These are all sawed on four automatic machines, the first of which cost the company $3000, and the next three about half as much each. They probably make twice as many sections per day as any other firm. Our output is from 40,000 to 75,000 per day. But the G. B. Lewis Co. make hives, frames, sections, and shipping-cases only, those being their specialties, while the rest of us who make a smaller number of sections per day are making every thing used by the bee-keeper, whether wood or metal. The company now employ about 125 hands. We are glad to add that the sections made by them are second to none in the market.

FOUL BROOD SPREAD FROM COMB FOUNDATION; IS IT A CAUSE FOR ALARM?

On page 447 of the *American Bee Journal*, Mr. S. Corneil, of Lindsay, Ont., Canada, holds the opinion that the disease may be spread in that way. He gives some interesting figures, showing the temperature at which spores and fully matured microbes may be killed. He says it has been ascertained that the death-point of the most resistant fully matured microbe is 140 degrees, and that the *spore* of said microbe could not be killed under a temperature of 257 degrees. Wax, he says, melts at a lower point than 145 degrees, and he adds that, in sheeting it for foundation, the wax is kept at a temperature as near the congealing-point as possible; and he concludes by saying, "There is good reason for believing that foundation has been sent out which has never been heated up to 190, much less to 257. It is highly probable that such foundation would contain germs of foul brood, if made from the wax of foul-brood comb." On the face of things this appears to be a pretty serious state of affairs; but, happily, the facts come to our rescue, and prove that there is no cause for alarm.

We have melted the worst kind of diseased combs in our large heating-tank, made foundation, and put it in our own yard, but no trouble ever came. And there is not wanting testimony from other experimenters to prove this. But if Mr. Corneil's theory be true, would not foul brood have been universally spread all over the land with the advent of comb foundation, years ago?

Now, friend Corneil, we do not wish to dispute you point blank, so we will explain why the disease will not propagate with foundation. All our wax is melted by steam, in a large vat holding over a ton. This vat is inclosed in another, and is therefore surrounded by water. We have just been down, and found that the temperature of this surrounding water was 200 degrees. After the wax in the inner vat is melted, this temperature is allowed to go down to about 180. We aim to keep the wax itself in the melting-vat at about 170 degrees, and this temperature is maintained for days. The supply of wax is kept up by putting in cakes at a time, and it is dipped out as fast as we want it. As Mr. Corneil himself admits, a long-continued high temperature is equivalent to a much higher temperature for a few minutes; and not only the microbes but the spores themselves have got to succumb. A few hours of 170 degrees, we know from long experience, will kill all sorts of germ life. While the wax in the *melting-vat* is kept at 170, that in the dipping-tank is kept very near the congealing-point, 140, sometimes as low as 130. But before it has arrived at the dipping-tank, it has long ago been thoroughly disinfected by the long-continued heat of 170 degrees. The Dadants have a similar melting-arrangement, and we feel sure that their foundation is perfectly free from any live germs. Perhaps we should remark further, that the wax melted in a solar extractor might not be disinfected, and it might be a wise precaution to remelt all such wax that has come from diseased colonies. But as there are very few apiaries indeed in the United States that have foul brood, no one need have any fear about the solar wax-extractor. It will *probably* kill the germs, but *may* not.

WHAT WE USE IS THE BEST.

We like to think that the things *we* use are the best. It is not comfortable to think that somebody else is using devices or implements vastly better than our own. We use and recommend the Victor Spring-fork Safety bicycle. *We* think it is the best of all machines of that description. But it may be it is because we own one, and do not like to think the other fellow has a better one. Those of us who have been using loose frames may feel a little uneasy in the thought that fixed frames may one day be *the* frame. It would be very expensive to change, and so we like to persuade ourselves that what we use is just as good, and a little better. Be that as it may, it is well we do not change at every breath of wind.

CLOSED-END FRAMES, AND CHANGING OVER WHOLE APIARIES.

Now that the advantages of fixed frames are being set forth, do not let any bee-keeper owning 100 colonies on loose frames be foolish enough to change over his whole apiary to that style of frame. It has been demonstrated over and over again, that bees will make honey for their owners, in loose frames and in fixed frames; and the frame we should use is the one that affords the most convenience and accommodation. The frame that the apiarist can manipulate the easiest and the most rapidly, will, of course, make a little more money for him, because less labor is required. We have mentioned this two or three times already; but for the sake of some who are too enthusiastic, or inclined to be hasty, we think it will bear repeating again.

WHAT IS THE MATTER WITH OUR PATENT OFFICE?

The other day an attorney sent us drawings and specifications of a patent that had just been issued to his client, on a bee-keeping appliance. Just out of curiosity we thought we would look the matter up, as we were sure it was old. We discovered that there were two other patents on the same thing, and the dates of the three patents are not more than a month apart, in the *same year*.

Somebody is going to lose money if one of the trio "goes to the courts." Now, this is not one instance, but one out of many that have come to our knowledge; and if any of our readers wish to know what the three patents are on we can inform them by letter; for, to make the thing public here, might make something of an uproar in camp. E. R. R.

LOOKING OVER BACK VOLUMES OF BEE-JOURNALS; A HINT TO WOULD-BE INVENTORS.

It is real fun to look back through the old volumes. Problems that now seem to be quite fully solved, were, years ago, discussed, and seemed to be in a maze of mystery. Verily the world is moving, in spite of the fact that sometimes we do not seem to arrive at the solution of many old problems. It is interesting to see how the Italians were opposed. By some they were accounted as almost worthless. Foundation was another thing that had to fight its way inch by inch, until it is now regarded as one of the indispensables. Even the honey-extractor was called a "honey-slinging machine," and was regarded as worthless. A glance through the old volumes shows us that what we regard nowadays as entirely new was invented, described, illustrated, praised, and condemned, years and years ago. When our editors declare a thing to be old, it almost gives offense. Those of us who aspire to be inventors, and to be the originators of something new, should first purchase a set of old bee-journals and look them over, and see what has been invented. A mere skimming will not answer. We must scan page by page and paragraph by paragraph.

SILVER-PLATING OUTFITS; MORE ABOUT THE LAKESIDE ELECTRIC CO., ENGLEWOOD, ILL.

Some of the friends thought I was a little hasty in pronouncing this whole business a fraud and a swindle from beginning to end. When I put in the caution on page 240, March 15, I felt satisfied that the whole thing emanated from J. M. Bain, Zanesville, O., as it had so plainly on the face of it the ear-marks of his plan of swindling. Just as we go to press we are informed that Postmaster-General Wanamaker has forbidden any mails to be delivered to W. H. Griffith & Co., Zanesville Chemical Co., Bain & Co., and J. M. Bain. All letters addressed to any of the above are to be returned to the sender. with the word "Fraudulent" stamped across the envelope. In one single day over $800 was paid out to Bain. The Englewood, Ill., institution is only a branch of the same concern. Bain has started out with so many addresses and so many different places, that one needs to look carefully before sending him money. As the U. S. courts are after him, his swindling is probably nearly if not quite at an end.

PRICE LISTS RECEIVED.

J. M. Young. Plattsmouth, Neb.
W. H. Bright, Mazeppa, Minn.
A. G. Hill, Kendallville, Ind.
W. H. Norton, Skowhegan, Me.
J. M. Kinzie. Rochester, Mich.
J. H. M Cook, 78 Barclay St., New York.
W. J. Valentine, Hagerstown, Md.
N. D. West, Middleburgh, N. Y., cell-protectors.
The following were printed here:
Leininger Bros., Fort Jennings, O.
S. R. Holbert, Monangah, W. Va.

CONVENTION NOTICES.

The Central Michigan Bee-keepers' Association will meet at Pioneer Room, Capitol, Wed., May 6, 1891. All are invited.
W. A. Barnes, Sec., Lansing.

The Bee-keepers' Association and Fair will be open May 6. Open to all.
H. Smith, Sec'y.
Ionia, Mich.

SPECIAL NOTICES.

THE HONEY-BEE.

The price of the above work by Thos. Wm. Cowan, mentioned elsewhere, will be $1.00, instead of 75 cts. as formerly announced.

FIGWORT, OR SIMPSON HONEY-PLANT SEED WANTED.

If any of you have any, even a little pinch, we should be glad to get it, as we are not able to furnish even the five-cent packages.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. **MAY 1, 1891.** **No. 9.**

STRAY STRAWS

FROM DR. C. C. MILLER.

PLANT POSIES for your wife.

NO NEW BEE-JOURNAL has started for a week.

THOSE REPORTS on p. 289 are very interesting.

DWINDLING in Medina makes me keep my bees longer in cellar.

ESPARCETTE, spoken of on page 279, is called the honey-plant *par excellence* in some parts of France.

THAT SKELETON hand on page 258 has one joint less on its forefinger than on its little finger. Has it been fooling with a buzz-saw?

WHO CAN TELL, with some show of authority, which is worth more for spring feeding, a dollar's worth of granulated or brown sugar?

LOCATING HIVES on the south side of a building, very properly says W. S. Pouder, in *Indiana Farmer*, "is liable to give bees the swarming fever."

PHACELIA TANACETIFOLIA is making some stir as a honey-plant in Germany. I believe it comes from California. Can any one tell us about it?

FOUL BROOD. Chas. Dadant gives, in *A. B. J.*, convincing evidence that there is no danger of foundation carrying foul brood. I've breathed easier since reading it.

DR. TINKER ought not to tinker with our spelling. "Storey" is all right in England, but it looks funney here. It's too much labour. The spelling of our language is horrible, any way.

MAPLE BLOOM, my former guide for taking out bees, is unreliable. March 30 it was in bloom here, following which was cold weather, including a snowstorm which left the ground covered three days.

WINTER CASES, on p. 289, seem to beat chaff hives. But I'd like to see them compared in a hard winter, or in a colder place than Medina. Still, if the proportion were changed, and 14 in winter cases had died to 11 in chaff hives, I'd take the winter cases.

THE PACKING-BOXES of the Oatmans, referred to on page 267, I saw last summer. Certainly not all of them had bottoms, I think. They were three stories high, making 12 hives in a pile. If I am rightly informed, they lost heavily during the last of their wintering.

THE NON-SWARMING SYSTEM met my eyes in reading. I felt curious and interested. Then I saw it advertised by Geo. A. Stockwell, and I felt glad. I sent a quarter, got a pamphlet with less than would go on three pages of GLEANINGS. I read it and felt—humbugged.

"UNIFORMITY should be *the rule* in sections and crates, and any departure from that rule should be disapproved and frowned down." That's what the *A. B. J.* says in an editorial inviting a full discussion of the subject. Brother Newman, you've struck a good note.

COARSE WIRE CLOTH over entrances in winter is approved (p. 266) by Bro. Potter and the editor. Why, bless you, don't you know that I am with you, friend Root? I even go further than Bro. Potter, and have my wire cloth so coarse the bees can go right through it.

JOHN SMITH, in *Nebraska Bee-keeper*, doesn't believe in "fixed distances." He says: "I can set my hives near or far apart, and it doesn't matter to other folks either. If they don't like the looks of my yard as I fix my distances, they can go and fix their own distances in their own yards."

A NEW PROJECT is on foot in England to start a bee-paper. A stock company is to be incorporated with a capital of $50,000, in 10,000 shares of $5 each. Among the movers are J. Hewitt (a Hallamshire bee-keeper) and T. Bonner Chambers, of Sheffield, where the paper is to be located.

COOKING EGGS, as given on page 282, is good. Here's the way our folks do. Pour *boiling* water on the eggs, at the rate of a quart to a half dozen; *cover*, and set on the reservoir. In 10 or 15 minutes the yelk will be done soft, and longer will make it harder; but the white will not get hard in all day. It doesn't need such close watching as your way, Mrs. Axtell.

STARTING SEEDS, particularly fine seeds, in boxes. Bake the soil to kill weed seeds. Fine it, level in box, lay seeds on top, sprinkle fine soil over, just covering the finest seeds; lay brown wrapping-paper flat on it, and keep always a little moist. The paper holds the moisture, and prevents the seeds washing out when watered, besides the other good it does as a covering.

ROBBERS sometimes clean out a weak colony in spring. Whatever you do, don't take a hive away that the robbers are at work on. If you do, they'll only attack a neighboring colony. Take most of the contents out of the hive, but leave at least one comb with a little honey to finish. If you must take the hive away, put another in its place, with something for the robbers to work on.

PIPING of the queen, says Henry Alley, "is made by the rapid vibration of the wings before the queens leave the cells." He should have added, that the sharpest piping is made by the young queen at liberty. Wouldn't it be best to continue the old-fashioned way of saying that the queen at liberty "pipes," and the queens still in the cells with the coarser voices "quahk"? Cheshire says the wings have nothing to do with the piping.

REQUEENING. Alley says, in April *Api.*, "It will pay to requeen colonies each two years." Rambler says, in same *Api.*, "When a honey-producer advocates the requeening of all his colonies the second year, it seems to be an evidence of the inferiority of his system of queen-rearing and of his queens." That's rough on Alley, but he has lots of good company on his side, and I guess he can stand it.

GENERAL CORRESPONDENCE.

THE CAUSES OF SWARMING.

DADANT TELLS US WHY HE PREFERS LARGE HIVES.

About 40 years ago a friend of mine told me that he had seen a swarm settling on a rock in a waste land, about half a mile outside of the city in which I lived in France. It was at the beginning of April, and had I not known my friend as unlikely to tell lies I would have thought that he intended to make an April fool of me. After finding the swarm I covered it with a hive, and the next morning I brought it home. My business prevented me from looking at it before evening, when, to my surprise, I saw that most of the bees were gone, and that the few hundred which had not followed the others were unable to fly. They were starving. Then I concluded that this colony had deserted its hive for want of food; and this view was confirmed by several other similar experiences. On a Sunday afternoon, while glancing about my home apiary, I saw the alighting-board of one of the hives covered with fighting bees. The ground in front of the hive was already covered with dead ones. I stooped down, and racked my brain to find an explanation of the fact, for I had never seen any thing like that, when, on a sudden, a lump of bees larger than my fist dropped on my hat, and thence slipped upon the fighting bees. Raising my eyes I saw a swarm suspended under the limb of a tree just above. These bees were so weak that they were unable to cling together, and were killed by the bees of the hive in front of which they had fallen, little by little, in small bundles. I procured a hive into which I shook the swarm. They took the food that I gave them, and, after having regained strength, they departed. Had I given them one or two combs containing honey and pollen they would have stayed.

I have seen several colonies deserting their hives for want of honey, and especially of pollen. I returned them after having attended to their needs, and they were happy to stay. I have seen, also, bees deserting as soon as they were brought out of a cellar which had been too warm. For several weeks these bees had been anxious to have a good flight; their hives had been for them a prison, and they availed themselves of the first chance to depart.

All these occurrences, showing that bees swarm to find better abodes when they are dissatisfied with the circumstances in which they are, induced me to investigate the causes of natural swarming, which, so far, had been considered as a natural impulse given to bees in order to replenish the earth.

As bees generally swarm when their hives are full, the first thing to be considered was whether the lack of room was not the cause of swarming, especially as it is well known that bees in small hives swarm more than in larger ones. Now, the question arose: "How much room is needed to accommodate the most prolific queen?" For several years I kept an observing-hive, and had noticed that a good queen can lay about six eggs per minute, or 360 per hour. If we suppose that she lays half the time, or 12 hours in 24, we have 360x12, or 4320 eggs per day, during the best time of the season.

A well-known German bee-keeper, Mr. Von Berlepsch, having hived a swarm on empty combs, counted the eggs laid by its queen during the first 24 hours, and found a few more than 3000. But, having probably considered this number as unusually large, he did not draw any inference from it, for he did not enlarge his small hives. Yet, since a queen taken at random can lay 3000 eggs to-day, I can not see why she did not lay the same number yesterday, or why she will not lay as many tomorrow, if the circumstances have not changed. To verify whether a queen is able to lay 3000 or more eggs per day for several weeks, it is indispensable to give her colony a number of cells sufficient to receive her eggs for 21 days, besides the cells containing the provisions of honey and pollen.

I had several large hives built to produce comb honey in small boxes placed at both sides of the brood, after the idea of Jasper Hazen. I resolved to use them for my experiments. These hives could accommodate 14 Quinby suspended frames, 18x10½ inches inside; and my enlarged American hives could accommodate 16 frames. I filled these frames with worker combs and watched the results. We have these hives yet in our home apiary. I soon ascertained that these hives were too large, even for my best queens, whose laying, during the best seasons, exceeded 4000 eggs per day for 21 days, and I concluded that a Quinby hive, with 10 frames and a partition-board, would be sufficient. These 10 frames, containing 104,500 worker-cells, can accommodate the laying of from 3500 to 4000 eggs, leaving 20,000 or 30,000 cells for the provisions. All the Quinby hives that we have made since have 10 frames and a partition-board. These hives are larger than a 12-frame Langstroth; yet, every year, when the white clover begins to bloom, nearly every one of them is full of brood and of bees, ready to bring honey into the upper story, or to swarm, if we delay, even for very few days, the enlarging of the room.

In the spring of 1889 we had put our upper stories on the hives, as we usually do in the last part of May; but the bees, for a week or more, did not bring any honey, when, the wind having changed, we noticed a booming in the apiary. Two days after, although we had raised their hives from the bottom-boards, several colonies were gathered outside of their hives. Their upper stories, containing each about 50 lbs., had been filled in less than three days. We hastened to put a second story under the first; yet some swarmed — dissatisfied, doubtless, with these large hives which had proved too small to receive their daily crop. As it was impossible for us to enlarge the space in our six apiaries on the same day, we had an unusual number of swarms, 15 or 20 per cent, if I am not mistaken; more in our Langstroth hives, and such swarms! One of them was so large that we had to give it two upper stories on the evening after it was hived. The bees in these large hives were therefore as much crowded as a colony in a small hive; for it is not the size of the hive which excites the bees to swarm; it is the comparative narrowness of their abode; it is the lack of empty cells to receive the harvest and the eggs of the queen. When the honey comes in slowly, the enlarging of the room with empty frames may suffice; but when the crop is very abundant, as the workers do not like to remain inside to build combs, while the nectar abounds in the fields, they swarm.

Most bee-keepers think that our hives are too large to raise comb honey; furthermore, a great many have reduced their Langstroth hives to eight frames. But when we made our experiments, the extractor was not yet invented; and for several years after its invention, as extracted honey was difficult to sell, we raised comb honey, in small boxes first, then in 3-lb. Adair sections; and our crops were not smaller in quantity than those of bee-keepers using smaller hives, whose apiaries were in the same lodition as ours.

One of the advantages of large hives is, that their queens, during the summer, have a great many empty cells in which they can lay, and the workers a large space in which they can lay up a quantity of fine summer honey for winter.

I know that both these propositions are in direct opposition to the new doctrine which advises the bee-keepers to contract the brood-chamber so as to stop the laying of the queen, and to compel the bees to bring all their harvest in the sections; but I know that our crops, even when we raised comb honey, gave us more profit with less work, and fewer chances of loss, than the narrowing method to its partisans. A queen, from July to August, can lay very little in a small hive; and as the workers do not live, on an average, more than 35 days during the working season, the number of bees is very much reduced in the fall. When winter comes, the population, which is small, suffers proportionately more from the cold than a larger one. In spring the bees are slow in recovering a number of workers sufficient for the harvest, and their owner is compelled to narrow up the brood-chamber to force them in the sections. Thus the advocate of small hives turns in a circle. His colonies are small in winter and spring, on account of his summer contraction; then he is compelled to contract his hives again to get a crop. On the contrary, not only the queens in our large hives are not hindered in their laying; but the workers have a large room in which they lay up an abundance of the best provisions. Then the population well fed, able to keep well warmed, coming out in spring numerous and healthy, fill their hives with workers ready for the honey-harvest.

A successful Italian bee-keeper, who was converted to the large hives by my writings, wrote, last year, in *L'Apicoltore:* "To obtain good crops of honey you should prepare your colonies during the preceding summer." Contraction does just the reverse. Our experience on the question of the size of hives continues the same. In our Lamont apiary (see GLEANINGS, January 15, page 60), we have about 30 large Quinby hives and 23 ten-frame Langstroth. Last October all our Quinby hives but three had sufficient stores for winter, while 19 of the 23 Langstroth had to be fed. Yet we did not take an ounce of honey from their brood-chamber in summer. For several years we had intended to transfer their colonies to Quinby hives, and we have resolved to do it this spring.

But, to return to my subject: Natural swarming can be caused, also, by the death of the queen during the honey season. Then the workers, if they have eggs or young larvæ, raise several queens; and the first hatched, being hindered by the bees from killing her rivals, is dissatisfied, and goes out with a swarm. This swarming we designate as a "primary swarm with young queen." Such swarming with young queens amounts, on an average, to two or three per cent of the number of our colonies. It shows that it is impossible to prevent natural swarming completely, unless you watch your colonies to prevent them from replacing their queens during the honey harvest; but it confirms my theory, that swarming is always caused by the uneasiness of the bees.

Hamilton, Ill., Apr. 16. CHARLES DADANT.

[Friend D., I am well aware there are many things to be said in favor of large hives; and where one works for extracted honey, as you do, I rather think I should prefer them. As this large amount of room is needed, however, during only a part of the year, there are some very good reasons for enlarging, when needed, by an upper story; and if we do this, it behooves us to have our frames rather shallow. This is why Langstroth decided on the frame he has. Using ten combs below and ten more above, we have a hive about as large as most bee-keepers care for, and it comes in good compact shape, pretty nearly a cube. It is true, the boys have of late very strongly favored an eight-frame hive; and for comb honey, where we wish to oblige the bees to put all the surplus into the boxes above, an eight-frame hive may not be so bad. And, again, for those who sell bees and ship whole colonies, eight frames are about all that is really necessary to ship and pay express charges on. I have for years noticed that bees do swarm, both in season and out of season, when their home is not to their notion. I have seen nuclei desert their hives, apparently because they were pestered by a nest of ants. I have seen them do it, also, when I could see no other reason than that the entrance had been carelessly left too small for them to go out and in comfortably. They swarm out when the hive is overcrowded, when out of stores, and in glass observatory hives when they have too much light, or if the sun makes them uncomfortably hot, etc.]

UNITING WEAK COLONIES.

DOES UNITING PAY DURING SPRING DWINDLING?

On page 290 of GLEANINGS for April 1st I see that some spring dwindling is experienced at the "Home of the Honey-bees," and in this connection I see that the editor advises uniting weak colonies which have the "spring dwindling," unless the weather is warm and pollen is abundant. This is going back to the plan of the "books" on bees of years ago, where they told us the time to unite was when it was discovered that any two colonies were too weak to be of use alone. There is no question but that the uniting of two weak colonies to make one strong one is profitable to the apiarist; still, that uniting must make the *one* better than either of the *two* would have been when the honey harvest arrives, or our labor of uniting is worse than useless. That the uniting as proposed by the editor does not, as a rule, make the united colony better at the end of three weeks than each would have been if left separate, is why I object to the advice there given. Years ago I experimented along this line to my entire satisfaction, and I have put as many as seven such "spring-dwindled" colonies into one hive, the seven making a good rousing colony at the time, and in a month all were dead; while some, no stronger than some of the best ones put into this hive, which were left separate, pulled through and built up into colonies. The idea seems to be, that, where two or more such colonies are put together, the bees seem to think that they can do something "big," and so work themselves up to great activity in starting a large lot of brood, which wears out the little vitality there is left in them before enough young bees hatch to take the place of those wearing out daily; hence all perish; while, if they had been left to themselves, they would have been less active, the few young bees which hatched would have taken the place of those which died, and, when settled warm weather came, the few young smart bees which were in the hive at that time would and could care for a large lot of brood in proportion to their numbers, so that the colony would build up for the next winter if nothing more. I once had a colony get so low in this way that there were, by actual count, only eighty odd bees the fore part of June; and yet this little colony, without any assistance from any other colony, built up into a good colony for winter, and gave two of the large old-fashioned sections of nice sealed buckwheat honey. Dr. Miller and several other of our best bee-keepers have reached the same conclusions regarding uniting spring-dwindling colonies that I have, if I am not mistaken. By confining these small colonies to as few frames as they can cover, and building them up as fast as possible when it comes warm weather, and *then* uniting them just before the honey harvest, has given me splendid results in honey, as I have given in back volumes of our bee-papers.

LARGE SWARMS TO PREVENT SWARMING.

I see Mr. Robbins, Mr. Dayton, yourself, and others are discussing the swarming question, along the line of large hives, etc., you claiming that it is the large hive used by the Dadants and Bro. France which give them so little swarming. Now, it seems to me that, from the light of the past, no one can deny that your position is right; for, away back when our lamented Quinby wrote his "Mysteries of Bee-keeping Explained," he told us that a hive of 4000 or more cubic inches filled with comb was almost an absolute non-swarmer, bees staying in such hives for years without swarming. I quote from memory, and have not tried to get the exact words. No one, so far as I know, has any trouble, to any extent, with swarms when working for extracted honey, which working always demands a large amount of comb space, if we are to have the best results. But the real point at issue, as I look at it, lies in the fact that no *best* results in *comb honey* can be secured and use a hive containing from 3000 to 4000 cubic inches in the brood-chamber, or that amount of space filled with empty comb in early spring. Quinby told us that a 4000-cubic-inch hive filled only a third full of comb the previous season, would just as surely give a swarm before more comb of any amount was built, as would a hive filled with comb one-third this size, and this brings the thing down to just where we find it in working for comb honey. We have the small hive filled with comb, and the sections without comb; or, if you please so to term it, a three or four thousand-cubic-inch hive, one-third of which is filled with brood-combs and the rest with sections, in reality empty as the bees view it, and swarming is the result. Should we fill our 2500 cubic inches of section room with sections filled with empty comb, on the "continuous-passageway" plan, we should not have any swarming. But, alas, we do not wish to do this, for reasons too numerous to mention here, and so it comes about that he who works for comb honey must expect to have swarms; and, if I am correctly informed, the Dadants and Mr. France are as subject to them as any of the rest of us with the few bees they work for comb honey, whenever they work for the same. The trouble seems to be, that we sometimes confound the working for comb and extracted honey, so that the reader is perplexed to know our meaning. If my memory serves me rightly, I have never had more than three swarms from all the colonies I ever worked for extracted honey with my small brood-chambers; and years ago I produced extracted honey by the thousand pounds. A non-swarming hive for comb honey is a desirable thing, but something not yet brought about. G. M. DOOLITTLE.

Borodino, N. Y., April 15.

[Friend D., I have had just the same experience you have in putting a number of sick or diseased remnants together. At other times I have surely saved weak colonies by uniting. Where one has quite a few bees, and no queen, and the other has a queen but not the bees, it will surely pay to unite them, and we may often discover weak colonies that may be united with queenless ones; for during dwindling, queens have a way of disappearing suddenly, as well as bees.]

SWARMING AND THE HONEY-HARVEST.

HOW MAY WE GET THE MOST HONEY WHEN BEES SWARM DURING THE HONEY SEASON, AND KEEP DOWN INCREASE AT THE SAME TIME?

Does swarming during the honey-flow necessarily diminish the quantity of surplus gathered? that is, can we get as much comb honey as we could if they would work right on without swarming? I think *I* can, but it is not as easy to tell *how* to do it as it is to tell how not to. When a swarm comes off, hive it in a full-sized brood-chamber, and set it on a new stand. When the lower story becomes full, put on empty surplus arrangements. Let the unfinished sections on the old colony remain there. Hive the after-swarms, and treat them as you do the first ones. The chances are that the sections given the new colony will be finished long before those on the old stock, and very likely the latter will never be finished at all. Just follow up that system, and I promise you will get less than half a crop; and if the season is a very short one you will get little or nothing, when I may get a very fair return.

I would rather my bees would not swarm very much, because of the watching and labor involved. But they will swarm, and that right in the midst of the honey harvest, as I presume is the case wherever clover is the principal source of supply. And as I can not prevent it, I have been driven to study and practice methods to overrule it and the effects thereof. I have been so successful, that, so far as the quantity of honey they will give me is concerned, I would as lief have my bees swarm as not; and at the same time the increase in size of my apiary is very moderate.

A swarm of bees embraces much the larger share of the field bees of a colony, and are, in fact, mostly of that class. Quite a sprinkling of bees of a younger age are, of course, present; and, when hived on the old stand, that number and the number of field-bees will be somewhat augmented. All this, together with the fact that being thrown out on their own resources appears to give them an added incentive to action, puts them in the very best condition to make every lick count. They will accomplish more then for a while than at any other period.

I hive my swarms on some old stand, of course. The original purpose of that was to prevent after-swarms; but it becomes, in fact, but one of its two principal purposes. The other is to get as large and permanent an available force of workers in the new colony as possible. I consider the stock from which a swarm has issued as virtually of no account for comb honey the rest of that season. If they swarm again they are of but little use, and they are worth no more as a colony if means are pursued to prevent swarming. Hence I want to get all the bees I can into the swarm. I then shall have recruits there to take the place of the old ones as they drop off. But in place of setting the new swarm on the old stand, I carry it to the stand of some other colony that has lately swarmed, or that of some weak colony. In either case I set the displaced colony down beside it, with the entrance turned at right angles to it. I adopted this method in the effort to prevent absconding of swarms. Now, please do not laugh at me, but I do believe that bees look up a location before they go off. From the evidences, I think this is often done, if not usually, after the swarm issues. While I find the expedient does not always prevent them from coming out of the hive where they are put, so far in the two seasons I have practiced it, none have shot right off for the woods. Removing the swarm to another stand gets them where the prospectors can not find them to lead them off.

Having disposed of the swarm, I remove the case or cases of sections to the new colony. If the swarm is very large, or the cases pretty well filled, I put on an empty case underneath.

The size of brood-chamber into which we put our swarms is an important item. My verdict is emphatically for contraction. I am troubled much with absconding of swarms; but while I have suspected, I can not find any good evidence that contraction has any thing to do with it. I generally hive on five frames, with foundation starters. I have not tried frames filled with foundation enough to know whether that would affect the honey-yield. Hutchinson has tested both methods, and he says use only starters. Wired frames and full sheets have objectionable features to me. I like my system —contraction—so well that I should be very loth to give it up after six seasons' practice.

The above I believe to be in detail the two great essential principles of the only profitable system of comb-honey production where swarming must take place during the honey-flow. For me, swarms thus treated give as much honey as colonies that do not swarm at all—the latter, however, being greatly in the minority.

Now, what do I do with the old colony? Well, if I do nothing else with them I remove them in a few days to another stand, or set them on top of another colony. I take a great many of them to pieces, and use them by frames to form nuclei, or to build up other nuclei or weak stocks. But more than any other one thing, I carry the frames or hives to the upper story of some other colony, and run it for extracted honey. I find it necessary to raise honey in both forms to supply my trade. But I keep very few empty combs for that purpose. I think it much better to do as I have stated. It keeps down increase to some extent, and I get a benefit of the combs I could not otherwise. I confess it is slower work to uncap these combs, as the surfaces are more or less uneven. Sometimes I unite two old colonies, after a queen gets to laying, by shaking the bees off one set of combs on to the other hive, then put on sections when there is a pretty good prospect of getting something from them. But more often I go through these old colonies some three or more weeks after swarming, and extract the honey from all combs half or more full, and they have usually gathered considerable by that time.

After the clover harvest is over and the surplus cases are all off, I take out the dummies and fill up with frames from these upper stories, nuclei, and old colonies that I have yet left intact. The bees then have full breeding capacity, and room to store honey for winter. And, by the way, I can not see but that my bees winter as well on fall honey as that gathered early in the season. I unite more or less in the fall, as conditions seem to demand it.

CLOSED-END FRAMES; WHY NO BEE-SPACE IS WANTED BACK OF THEM.

Ernest, on page 211, hardly states just the reason why I want no bee-space back of closed-end bars. It is simply this: I do not want them there when manipulating frames. They are of no use there, and they are a nuisance. In removing hanging frames, especially with one hand, it is a wearying effort, when a hive is pretty full, to avoid crushing bees, and then I can not always do it. One end is pretty apt to be heavier than the other, and then they will not hang even; and even if they would, to raise or lower a frame in exactly the right line to retain the true bee-space is the hardest matter of all. Now, if I can just slide the end along the end of the hive, especially if one end overbalances the other very much, it makes it more easily and quickly done.

COST OF TIN AND ENAMELED-CLOTH HIVE-COVERS.

I have just been figuring up the relative cost of the two styles. I find that, exclusive of paint, the enameled-cloth covers will cost about 3¼ cents, and tin about 6½ each, aside from freight charges. The former will take more paint and more time to fix, which may make it cost from ⅗ to ⅔ of the latter. In addition to that, paint will not adhere to tin or any other very smooth non-porous surface very well; whereas, spread on the wrong side of enameled cloth it is a fixture, making the latter much more durable. Still, I have have not actually tested tin. In the main I have nothing over my covers, just because I do not need any thing.

GEO. F. ROBBINS.

Mechanicsburg, Ill., Mar. 23.

FLOATING APIARIES.

FURTHER TRIALS OF THE SCHEME, AND THE RESULTS.

Several facts in regard to the ups and downs (especially the *downs*) of migratory and non-migratory bee-keeping have recently come to my knowledge that may be of interest to those inclined to try the experiment of obtaining more than one crop of honey in one season. Some time in December, 1890, friends Stevenson and Deemas, of near St. Charles, Mo., started with about 125 colonies of bees, mostly Italian, in excellent hives, and well equipped for gathering a fine crop of honey, and increasing to any desirable extent, with some imported and Doolittle queens, for New Orleans or vicinity, on the steamer City of Baton Rouge. By the way, that is the very boat on which I, on several occasions and on different trips, shipped from 300 to 400 colonies of bees at a time from New Orleans to St. Louis. On the way the steamer struck an obstruction, and boat and bees went to the bottom, our bee-friends barely escaping with their lives. I sincerely sympathize with our unfortunate friends, for I have been through the mill myself, and know just how it is and how they feel; for, among other great losses, one of these same Anchor Line boats was the cause of the loss by fire of nearly 300 two-story Simplicity hives filled with fine Italian bees, with 20 frames to each colony. Nothing daunted they procured a fine lot of about 150 colonies of bees from friend D. McKenzie, of Camp Parapet, La., and took them to a point on the river, at or very near the same spot where Perrine, of Chicago, once had a large apiary. The prospects for a good crop of honey were fair, when, a few days ago, a break occurred in the levee from the great pressure of the high water. A crevasse was formed, and it was with difficulty that our friends saved their bees by hastily moving them to the levee. Of course, their prospect for a crop of honey now is a very slim one, with water from 5 to 15 feet deep for miles in every direction around them, and they will certainly have to move the bees to some other locality, and quickly, too, involving more labor and expense, if they expect to get any honey down there this spring.

Some of your readers may remember that, in a former article, some time ago, I mentioned friend E. Stahl, of Kenner, La., as having 1000 full colonies of bees, in one yard, and as having secured a large crop of honey from them. Well, it seems that the flowers down there last fall, while blooming profusely as they do up here quite frequently, yielded no honey; and the result is, that friend Stahl (so I am informed) has lost 800 out of 1000 colonies, by starvation. This is a good illustration of the uncertainties of migratory bee-keeping; for had any one taken several carloads of bees (as I once did) down there, prepared to secure a big crop from the fall flowers, he too would have had to feed his bees to keep them alive (at a loss, of course), or let them starve, as friend Stahl did; and let me say that this is one of the snags that our bee-friends, who favor migratory bee-keeping, will run against much more often than they think for.

As regards friend Stahl's loss, from which I know personally of him he will not care greatly, he will simply cut the combs out of the frames (not try to save them from moths, and fill them with bees again as we would do up here) and render them into wax, and stack hives and frames away (to use again), and in an incredibly short time have them all roaring with bees again; for if there is one man in the extreme south who understands southern bee-keeping, and understands how to make it pay at the least cost of material and labor, and who is always enthusiastic in regard to bee-keeping, and seldom discouraged, that man is (as I knew him) friend Stahl. E. T. FLANAGAN.

Belleville, Ills., March 28.

REARING QUEENS UNDER THE REGULAR BROOD-NEST.

ANOTHER HAS TRIED IT, AND FINDS IT WORKS.

I have reared a number of fine queens this spring, under similar conditions to those given by Dr. Miller, on page 270. To explain more fully, I will state that I use a two-story eight-frame hive for a brood-nest up to the time our harvest comes, when I contract to one section by means of a plain zinc queen-excluder, and at the same time raise the upper story and place between it and the lower one a set of empty combs or frames of foundation, always seeing that the queens are below. Now to the point. This spring, not having enough queen-excluders to go round, I placed upon some 18 or 20 colonies a case of partly drawn sections (left over from last year) between the two upper stories and the brood-nest below, thinking this would cause these sections to be filled quickly, and also discourage the queens from going above. I was right as far as getting the sections filled; but about half of the queens went up and established their brood-nest in the upper stories, and in all these cases the bees built from three to a dozen queen-cells below. Most of these I removed and saved, but left one cell in each of five or six colonies, and in due season I found laying queens in these; and it was surprising to see how quick they filled those eight combs with brood. At this point queen-cells were started. So I removed this lower brood-nest and placed it upon a new stand, giving it a case of empty combs, and in the course of a week those new colonies were in good shape to store honey. Now, all the while these young queens were below, the old ones were doing good work above. You may be sure this gave rousing big colonies just when they were needed; but during our orange bloom it set in to rain, and kept it up steadily for two weeks, which caused us to store two-thirds of our crop from this source. During this rain, these large colonies built from 12 to 15 frames of nice combs from one-inch starters, and also managed to store an average of 25 lbs. of honey each, while average colonies built only from 3 to 4 of combs, and did not get any surplus honey. I should have mentioned above, that these large colonies were in hives tiered four stories, besides the case of sections mentioned, and that the combs were built in the upper stories, and also that they would average about 25 per cent drone comb. This is doing well considering the conditions they were built under just before the swarming season. The queens were about one year old, part Italian and part hybrid.

Huntington, Fla., April 5. A. F. BROWN.

SAFEST METHOD OF WINTERING.

CELLAR PLAN PREFERRED.

Mr. Root:—I have been very much interested in reading the opinions of many of your subscribers as to the best and safest way of wintering bees, and I will not undertake to say which of the many are correct, as the locality may have something to do with their success. It may be well in large apiaries to experiment and test the different plans recommended, as the loss of a few stands to them would hardly be noticed, while the beginner in experimenting might lose all, or so cripple his business that it might take years to recover.

It might be advisable for beginners, and those having a limited number of stands, to retain the old and tried methods until they become satisfied that a change will be more satisfactory, taking into consideration the climate, location, and length of winter, which should be carefully studied. In this latitude and locality, cellar wintering has given the best results. I have wintered in the cellar for eight years successfully, and at no time has the loss exceeded ten per cent, while the average would fall far below. One year ago I tried the experiment of wintering nine stands outdoors in single-walled hives packed with chaff and straw, and well protected from the winds by a grove on the north and west. All went into winter quarters in splendid condition, with plenty of stores, and in the spring only one stand was left to tell the tale of outdoor wintering in this locality. Those wintered in the cellar came out in splendid condition, without the loss of a single stand.

Last year, Dec. 2, I put 30 stands into winter quarters in the cellar, all in fair condition, while some were in the very best condition. My loss was one stand. Twenty-nine stands came out of the cellar in good condition April 6th, and to-day are gathering pollen from the maple and box-elder.

My plan has been to place the stands in the cellar in the same condition as when prepared for winter, leaving the cushions and covers on. As soon as they get settled down a little, remove the cushions and covers, leaving the hive entirely open at the top, and the entrance open the same as in the summer, with bottom-board left on, and leave them in this condition until about two weeks before time to take them out in the spring, then replace the cushions and covers.

Your plan of removing the bottom-boards only may be equally good, but I doubt whether you will have very much better success in wintering; yet your plan will allow a greater number of stands to be wintered in a smaller room, on account of being tiered up. In leaving the hive entirely open at the top, it allows the steam or animal heat to pass off, while the plan of having the cover remain on the hive would, it seems to me, have a tendency to create moisture on the under side of the cover, consequently dampness in the hive. I observed this by placing a piece of burlap on the hive after removing the cover, allowing it to remain for several days, and then on removing it I found that it was wet; but whether the moisture came from the bees or from the cellar, it matters not; it would have the same bad effect on the bees. The old saying, "Never swap horses in the middle of the stream," holds good with me in this case until another plan proves equally successful. N. H. BELL.

Wahoo, Neb., April 9.

NUBBINS.

PROF. COOK GIVES US SOME VALUABLE THOUGHTS.

Friend Root, please do not call my brevities "Stray Straws." It does me too much honor, and our dear friend Miller injustice. Just dub my driblets plain nubbins.

Glad to hear what Dr. Miller says of melilot, as demonstrated in France, especially as we are going to give it a big trial at the station here. We are going to test its value for honey, for food, green and dry, and for silage. We are also going to test rape along the same lines.

I must say that I am with Bro. Newman on the editorial "we." Dr. M., you know what the good Quaker said to his wife—"My dear, everybody but thee and *me* is peculiar, and I sometimes think thou art a little singular." Now, when the doctor assaults universal custom—in other words, attacks essays at conventions on this "we," he is certainly the singular man. "*Honest Injun*," doctor; isn't it suspicious when you and I are the only ones in all the great human family who are right?

Friend Corneil is usually about right, but, without doubt, drew it too fine when he was going to have foundation sow microbes broadcast. Long experience says, "No, no."

You ask what I think about bees disliking red. If it is true, I should say it is a case of bee-taste. I say, *if true*. I have a friend who wears a red shirt habitually in working with bees, yet rarely ever gets stung. I had always supposed that bees were indifferent to color, though much annoyed by any roughness like fuzz on rough woolen cloth. I have heard it said, that bees dislike dark colors. I never could see that my bees objected to my dark clothes, unless rough and fuzzy. Why may not bees have taste? I like to see a girl, if a bright brunette, dressed in bright red; if a blonde, in light blue; so, as I have taste in such matters, far be it from me to deny a like peculiarity in bees. Sir John Lubbock's experiments plainly show that bees can distinguish colors, and what observing bee-keeper doubts it?

I don't wonder, friend Root, that you hesitated at the snake-story. But I have seen it, and so know that young "saugas" do run for protection into the maternal mouth. You ask about the breathing. I think snakes can manage for some time without breathing. In our own case I do not suppose cessation of breathing would be fatal till the heart should stop beating, which, with us, is in a very brief time. Not so the snake. I have known a snake's heart to beat for hours, even after it was taken wholly out of the body. Insects are like snakes in this respect. They will live a long time in a very small close box. I never looked in to see where the snakes went to, but I suppose they went to the stomach; indeed, some years ago some of our students killed a massasauga, and actually reported finding the young snakes in the mother's stomach. I feel quite certain that I have seen more than a mouthful run into this opening.

I always supposed that the very low gentle hum of bees in winter was only a note of "all right;" but a louder one, a murmur of "too close, more ventilation." I have often quieted bees by opening the door on a cool night.

Mr. E. France makes a good suggestion regarding wax secretion. I shall try some experiments to prove or disprove his theory. In case of Mr. Doolittle, I do not think the facts are with him. Bees often do go loaded with wax when swarming; but may they not have remained quiet before? we know that they do rest somewhat before breaking up the old home; and surely if hived on full combs, the wax scales disappear at once. I doubt whether Mr. Doolittle has the truth on his side.

Why does our usually correct friend speak of the scouts looking up a new home while the bees are clustering? As I state in my Bee-Keeper's Guide, I think the bees cluster to give the queen a rest after trying her wings, which are unwonted to labor. I supposed it settled, that bees look out a home before the swarm issues. They certainly do sometimes; and if so, I guess always.

Mr. Cowan is usually very accurate; but, is digestion separating the food? I should say digestion is rendering food capable of being absorbed, and that absorption did the separating. I wish to say, as I do say in my last edition of Bee-keeper's Guide, that Cowan's book is very excellent, and, I believe, *very correct*.

Friend Root, don't misunderstand me regarding granulated sugar for winter food, I believe, that, if fed in the fall, it is a superb food for bees. In this case it is digested, and is probably equal to any honey, and superior to much honey as a food; but I don't believe that it is a good food for bees, if fed exclusively while bees are in confinement, either in summer or winter. I think your experiments should be more extensive before you speak *ex cathedra* on this point.

Our bees wintered nicely on a diet of almost exclusively fall honey. Yesterday, Apr. 17, they worked in full force for the first time on soft maple. They got the first pollen April 13.

Ag'l College, Mich. A. J. COOK.

[I am very glad, friend C., that you are going to test rape and melilot. Tell me when they are furnishing honey to the best advantage, and I think I shall be along to see it. See article on page 360, in regard to melilot and alfalfa.—It occurred to me, too, that, if that red ribbon had been a little fuzzy, or if the bees found some stray ravelings, the latter might have accounted somewhat for the number that pitched into it. Yet I think the color *must* have had something to do with it.—Thank you for the instruction on just the point that seemed so strange and astonishing to me about the snakes when they were swallowed. How long did these young saugas stay in the maternal mouth? If you can not answer. I wish some reader of GLEANINGS would, at the first opportunity, test the matter, watch in hand. Now, please do not think me irreverent if I suggest that, in our recent studies about Jonah, I kept wondering how life was preserved when absolutely deprived of air; and is it not a little queer, that, in so many of these Bible miracles, we sooner or later find something somewhat parallel in the present existing order of things? These snakes stopped breathing, at least for a time. Well, when snakes go under water they also stop breathing—that is, they stop *one* kind of respiration.—While dictating the above, a bystander tells us about seeing a mother-snake swallow a lot of little ones, after which she crawled into a log. The boys plugged the hole up so she could not get out; and after school they split the log open, and killed the mother, and found the "juveniles" still alive. So this answers a part of my question.—We are glad to know that the bees at the college came through all right.]

ALFALFA AND SWEET CLOVER IN KANSAS.

SOMETHING SPECIALLY FAVORING SWEET CLOVER.

The writer of the following letter sent us an order for 100 lbs. of Bokhara, or sweet-clover seed. As this aroused our curiosity we wrote him, and he replies as follows:

It may be of interest to you to know what it was wanted for. Two years ago two neighbors (living ten miles from me) each bought a sack of alfalfa seed and sowed on their farms, which joined. The one came up and furnished a great amount of feed the first year. The other got but little or no feed the first season. Both fields bore purple or similar blossoms. The plants were somewhat similar, only that one grew very large, and fed a great many hogs. The crop was cut three times, while the other seemed to be getting root. The second year one field bore white blossoms; the other, the same as before. Upon investigation one plant proved to be sweet clover, the other alfalfa. The gentleman who had the alfalfa said the sweet clover double discounted any plant he ever saw for forage; that stock did well on it; that it produced well on ordinary land, of a dry season, and he was very anxious to get some of the seed. As I wanted something for hog-feed, I told him if he found any to let me have some. But on examining your catalogue which you sent me, I found you quoted the seed, and I ordered immediately, and then notified the gentleman of my action, and told him he could have 50 lbs.

I may not be satisfied with my venture. I have since been told by men from York State that it is a bad weed, impossible to get rid of, and that nothing will eat it; but I shall sow all the same. I have been in this country 32 years, and have had much experience with cultivated grasses. I have tested some kinds that were pests in the east, and they would not live long in this climate. Our soil is good enough for any thing, but it wants a peculiar grass to stand the climate. Any plant does well in a moist season, but we have dry hot seasons that kill any grass I ever planted. The native grass of the country always lives through and keeps green, and gives good pasturage and some hay. C. C. GARDINER.

Bradford, Kansas, Apr. 21.

THE NEW WATER CURE.

RENDER UNTO CÆSAR THE THINGS THAT ARE CÆSAR'S, AND UNTO GOD THE THINGS THAT ARE GOD'S.

Among the great numbers of letters that have been received in regard to this matter, there are perhaps half a dozen who suggest that Dr. Wilford Hall has not received quite the credit that belongs to him. Our friend Freeborn, on page 377, suggests something of the kind. Three or four think it is not quite clear that I was justified in "breaking my pledge,"* etc. As this matter of charging several dollars for information that can be put into a very small pamphlet, or perhaps on a single sheet of paper, is a thing that comes up every little while, let us consider it a little. Some years ago Herman Flick advertised artificial honey, and made great claims in regard to its wonderful excellence, and the cheapness with which it could be manufactured. I sent him $2.00 for the secret; but as soon as I received it I found he had *copied* it from *Dr. Chase's Recipe Book.* I do not remember whether I signed a promise not to tell or not. In fact, it *does not matter* particularly. I found him to be a humbug and a swindler, and it was clearly my duty to publish him as such, because he was *obtaining money under false pretenses.* The "pretenses" were not only *very many*, but they were *very false;* had it actually been a *new discovery*, the case would have been very different indeed. Some tell us that Dr. Hall is a *good* man, but that it was only an error in judgment. Where a man, by "errors in judgment," takes a great many thousand dollars out of his *neighbor's* pockets, and puts this money into *his own*, it begins to look a little as if there were something more than mere error in judgment. Well, let us drop the past and call it square. Let us say he deserves what he got, in view of the good he has done. How about the present? Dr. Wilford Hall's agents are canvassing with greedy haste almost every town in the United States; but as soon as one of our little tracts gets into the town the business is done up, and the agents gather up their circulars and depart to some place where A. I. Root is unknown. They have even gone to California, and the friends of justice are following them there with the little pamphlets. Now, can Dr. Hall and his agents be Christian men, or even honest men, when they continue to receive $4.00 from each individual for something they know is being scattered abroad all over the land free of charge? Who will answer? What excuse does Dr. Hall make for such a practice? Why, the only excuse he possibly can make is to *deny* that his discovery was in print previous to 1850. See the following from his journal, the *Microcosm*, for April:

> Now, to nail this villainy, and put a padlock on the pens of the scamps referred to, we will pay E. D. Scott one hundred dollars in cash if he will show us any publication, however obscure its author, which sets forth the essential details of our Health Pamphlet, bearing a date earlier than that of our discovery, said date being proved to be authentic, and not cooked up by some miscreant to serve a rascally purpose.

I have right here in my hands, while I write, Fowler & Wells' Water-cure Manual, by Joel Shew, published in 1847.† I do not want the

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*Dear friends, I have broken *no* pledge. I have not copied from Dr. Hall's pamphlet; I have only copied what I found in Kellogg's doctor book and the Water-cure Manual.

†Among the readers of GLEANINGS we have one whose *grandfather* was *Joel Shew's brother*, and this friend promises us some valuable facts in regard to his great-uncle's experiments.

hundred dollars, but I do want Dr. Wilford Hall to stop his highway robbery; and I hereby give him warning, that, unless he does it at once, I will lay the whole matter before the Postmaster-General, or other proper authorities. How much Christian spirit do we find in the little extract I have given above? Well, there is considerably more than a page of abusive slang, very much like it. The Water-cure Manual contains one whole chapter on this matter of internal water cure, and much of it is so exceedingly valuable that we shall probably give it in our next issue. The press of our country is now quite generally active in exposing Hall. Several papers have copied our little tract entire; and we call upon the journals of our land to help put down this extortion and fraud.

Of course, Dr. Hall is not the only one engaged in this same swindle. Great quantities of circulars have been sent out by one Lemke, Menominee, Mich. I wrote him at once, asking him if it were the same thing as Dr. Hall's secret. After waiting some time for a reply, and receiving none, I sent him $2.00 (his price), but I did *not* sign his promise or agreement; therefore I can give you the whole of it, without leaving grounds for any one to say that I have broken any pledge. We make extracts of all we consider of any moment, as follows:

LEMKE'S MEDICINELESS PRESCRIPTION FOR THE CURE AND PREVENTION OF DISEASE.

The large intestine is about five feet in length, and it may be filled in an adult so as to present a circumference of twelve inches.

The colon is that part of the large intestine which extends from the cæcum to the rectum, and which is divided into three parts, distinguished as the ascending, the transverse, and the descending. Here is where the excrementitious matter discharged into it by the small intestine acquires the fæcal smell, which increases the longer it is retained in the colon.

It may as well be admitted first as last as being true, that almost all ailments which afflict humanity come from impurities or disease germs, microbes, or parasites, which are carried in during respiration and secure a lodgment and enter into the vital circulation, only if they find a diseased spot favorable to their propagation, or from the impurities that enter into the vital circulation from what we eat and drink. These impurities may come directly from unwholesome food we eat, or indirectly from the absorption into the the circulation of disease-bearing germs, which arise from the stench of the fetid matter which a person carries in the colon. The quantity so carried about, whether there be a regular daily movement of the bowels or not, is estimated at from one quart to two gallons. Who would, for a moment, carry about or sleep with such an enormous mass of putridity and disease-bearing stench if a way could be suggested by which it could be got rid of without making the organs do it by drugs or laxatives?

Who would not gladly embrace the opportunity of adopting an agreeable, harmless, benefiting treatment by which this awful disease-producing, dangerous, foul, disagreeableness is directly removed, while, at the same time, all soreness, stiffness, fevers, and inflammations are driven out of the system? This I propose to do, and am successfully doing right along, by injecting into the rectum hot clear water, enough to fill and distend the colon, or flush it, the same as you would flush a sewer that is clogged up.

PRESCRIPTION.

Buy a rubber fountain syringe at a drugstore (or for $1.50 we can send you one) that will hold two quarts or more. Screw a hook into the ceiling above the foot of your bed; pour into the bag of this syringe two to four quarts of clear water, so hot that you can just bear to hold your hand in it without being scalded (never use cold or tepid water). Insert the rubber stem of the syringe into the rectum; hold the water there for 15 minutes, if possible, and roll about on your bed, when you will be ready to discharge this enema, together with the entire contents of the colon.

Those suffering with Bright's disease or other kidney troubles, or inflammatory rheumatism, piles, inflammation of the bowels, or other organs, should inject a second dose of half the quantity of first dose of hot water into the rectum, and hold it there against all efforts to break away, and go to sleep with it. After a few hours you will be ready to expel it through the kidneys and bladder.

DOSES.

Children, 1 to 5 years of age, 1 pint; from 4 to 15 years of age, 1 to 2 quarts; over 15 years of age, 2 to 4 quarts.

Persons ailing should take this treatment once a day before retiring to sleep; those in good health should use it every second or third evening.

SNAKES IN CHINA.

THE LARVÆ OF BEES AND WASPS A DELICACY.

Friend Root:—When one is off on a tour, and sits down to eat all alone, GLEANINGS is a good thing to read between bites, and make one feel as if he had good company. But to-day I happened to open a number in which Prof. Cook gets enthusiastic over snakes, which are not so appetizing as bees and honey. I, too, can tell a snake story.

Last summer I was strolling in a wild glen, seldom visited by man, along a path made by wild pigs, when a loud hissing startled me, and there on my right, about four feet away, was a large snake slowly coiling itself. Being empty-handed I sprang forward; and, a tough little vine catching my foot, I half tumbled, half pitched, about five feet down a steep bank into a tangle of viny bushes, from which I crawled out with a sprained knee that has made me a cripple for six months. The only good way out of the glen was past where the snake lay. He was coiled up where I first saw him, not in a pile, but round and round, flat on the ground, his triangular head resting on the central coil. He was very nearly the color of the ground, and in the shadow of the overhanging thicket, with his body flattened down close to the ground, I could but just clearly make out his outlines from ten feet away, though he was as big around as my wrist, and fully four feet long. I saw that he was too far away from the path to reach it at one spring, and began to move forward slowly, when, without an instant's warning, his head was 18 inches up in the air, and coming at me with jaws gaping almost six inches wide. He struck out only about two feet; but the suddenness of it made me spring back, and, tripping again, I tumbled over on my back. Then I got up; and, going down the glen a little way, I climbed up to the path and limped home. I think that snake would make a valuable addition to Prof. Cook's collection, and I am sure I wish he had him.

It seems strange, that, in so densely populated a country as this, wild beasts should still be common; but so it is. Where I am to-day it is market day, and I have seen three antelopes and one armadillo carried past, and have myself just dined on a golden pheasant. In this region, when the rice is in the milk, the farmers have to guard it night and day from the ravages of the wild pigs. A few Sabbaths ago I was holding meetings in a village near Shaowu and was told that, early in the morning, a tiger had eaten a sow. She had been turned out at daybreak, and, not coming back to her little pigs, the men went to look for her, but found only the remnants of a tiger's feast. Later in the day I saw the tiger's tracks, and measured them with a tape-measure. They were a strong five and a half inches broad. Such a beast would eat up a pig just as a cat would a rat.

Once as I was approaching a village I saw a number of men coming from off the hills, armed with hoes and sticks, and was told they had just been chasing off a tiger. I have never yet heard of a man-eating tiger in this part of this province. The nature of the country here, narrow valleys between high hills, and the absence of freezing cold winters, favor the increase of such "varmints," while superstition hinders somewhat their extermination. Poor weapons and ignorance of natural history aggravate the trouble. Once on a mountain path I saw a snake and asked a Chinese brother, "Have you poisonous snakes here?" After a short silence he cautiously replied, "On the hills we dare not speak carelessly." He is a good man, nevertheless. When he began to read his Bible at home his mother gave him forty blows on each ear as hard as she could lay on, first one hand then the other, and he, a man grown, took it all as meekly as a lamb. But now he is high in her favor.

I have written how Chinese bees will come and locate in curious places; but, alas! they will go just as they come. This summer I visited the places where I saw the bees under the bed and under the counter; but they were gone. In both cases the owners said the bees went off of their own accord; and Mrs. Whitney's "self-come" bees went off in a body one day last summer, leaving a lot of empty combs badly infested with moths. So far as I know, the Chinese use honey only as a medicine; but the larvæ of bees, or of wasps either, are considered a very dainty morsel.

I have just astonished a Chinaman by telling him that, even in silvery America, the lazy and careless come to want. J. E. WALKER.

Shaowu, China, Feb. 21.

HIVE RECORDS.

WOODEN POINTERS INSTEAD OF BRICKS ON HIVE-COVERS; A GOOD SUGGESTION.

During the past year there have been several articles from extensive bee-keepers, describing their methods of keeping a record of the condition of each hive by means of stones or bricks placed in various positions and on different parts of the cover. Now, I think I have a better way. Nail or screw three small buttons, each 1½ or 2 inches long, on the cover of each hive—one in the center and the others in the corners of one end. Let one represent the queen, one bees and brood, and the other honey. Each button may be turned to point in each of eight different directions; that is, toward each corner, and half way between these. Each direction has its meaning, and a single glance tells the exact condition of the colony the last time it was examined. I think the buttons superior to bricks or stones, because they are easier to operate and are less liable to be knocked out of place; but principally because, in removing the cover to examine the colony, no special care is needed, while with bricks or stones they must first be removed, or the cover handled very carefully to prevent changing their positions. Where a person is handling 200 or more colonies, something of this kind is needed to economize time, and this method seems to me to have more points of excellence than any other I know of.

M'INTYRE'S UNCAPPING-BOX.

This, as described on page 769, 1890, strikes me as being just exactly the thing for the large honey-producer; but I think an improvement could be made by dividing the box horizontally, the meeting edges to be beveled, the upper into the lower. The box would still be solid and firm; but removing the upper half would greatly facilitate taking out the drained cappings.

J. WEBSTER JOHNSON.

Tempe, Arizona, March 30.

[You have given us a good suggestion in regard to pointers fastened on the hive-covers. I had thought several times of adopting a similar plan. When working over a hive I usually sit on the end or side of the cover; and, of course, slates, stones, or other such memoranda as are held down by gravity, in obedience to the same law are displaced, and I have got to remember to put them back just as they were, or slightly modified to indicate the changed condition of the colony. Now, your pointers would not be disarranged at all, and could be made for an insignificant sum of money. For record-making on hives, we want something that we can read and see at a distance, just as we would tell the time of day on a clock-face by the figures, so far distant as to be almost undiscernible. Your suggestion in regard to the uncapping-box is a good one, I believe.]

E. R. R.

LADIES' CONVERSAZIONE.

BUILDING UP WEAK COLONIES.

MRS. HARRISON HAS NOT BEEN VERY SUCCESSFUL IN IT.

Mrs. Axtell, at our last conversazione, said, "I know of nothing that a woman can work at, and make pay better, than to take those weak colonies under her wing and nurse them into strong ones, by the time the honey harvest comes." I've done a good deal of this nursing business, and I never worked at so low wages at any other kind of work. I barely earned the water that went into my soup. Of late years I do all my spring feeding in the fall, and very little of it then, for the Illinois River bottoms have never failed to furnish a flow of honey in the fall, that I know of. When I put on Hill devices I tell the bees that they have plenty of honey to last until fruit-bloom, so good-by. After our bees were all taken from the cellar, Mr. Harrison said, "I wish you would look into that colony of bees nearest the grape-arbor, for they are weak, and I am afraid that they are starving." I was sorry that I knew that there was a weak colony of bees; but as I had promised the minister to "obey," I went and examined them and found plenty of honey, but only about a score of bees and a queen. I covered them up and left them until the afternoon, when it was quite warm, and opened the hive again, and was delighted to find out that the bees had departed for fresh fields and pastures new. I took out the combs, trimmed off all excrescences like old queen-cells, scrubbed the hive with brush and hot suds, rinsed with boiling water, and, when dry, put back the combs and carried it into the cellar to remain until I had a swarm to run into it.

I've tried every way that I ever heard of to build up weak colonies. I've given them capped brood, and I've brushed off young bees from combs belonging to strong colonies, and picked up the downy ones and given them to the weak, and I did more harm than good. I should have had more bees at swarming time if I had let them alone. It is not pleasant to talk of our failures, but open confession is good for the soul. Will Mrs. Axtell tell us how to build up weak colonies? I've confined them to a small space in the hive, with a nice clean comb of sealed honey, and tucked them up warm; but failure would result.

I've been practicing water cure for many years, in curing the ailments of my family, but novices should look a little out or they will do more harm than good. A specialist of the eye and ear told me lately that washing out the nostrils with a douche will inflame the ears, and my experience corroborates it.

Peoria, Ill., April 21. MRS. L. HARRISON.

[Mrs. H., while many of us have had an experience much like your own, we have also, at different times, had experience like Mrs. Axtell's; at least, I think most of us have. We thank you for your concluding caution.]

A NEW MEMBER TO THE LADIES' CONVERSAZIONE.

SUCCESSFUL WINTERING IN RICKETY HIVES, ETC.

I am very happy to notice in GLEANINGS a ladies' department, where we all can air our views on the different parts of bee-keeping, besides rendering assistance to each other in many ways. I shall beg to sit on the lower round of the ladder, and listen to the higher lights above me, that have had the practice and experience; for that is what we all require to be successful in any undertaking; it may seem very pleasant to hear one tell how to do this and that, but it is quite another thing when we do it ourselves.

I have only a few colonies, commencing with one in the spring of 1889; last year increased to seven, this spring dwindled down to three; have lost many bees, but gained much in knowledge and experience. I fed them in the fall, but very late; did not take the frames out to be sure they had enough, for I was afraid to handle them. There is an old saying, that "misery likes company," and I presume to say, that there are many as badly off as myself.

GLOVES.

I have a pair of rubber gloves that I have used some, but dislike them very much, as they cause the hands to perspire, and are very clumsy. A few days ago I changed two of my colonies into new hives and used some common gloves partly worn out, that were made of pigskin. They are thicker than the common kid—something like dogskin, with large loose wrists. I got a few stings where the fingers were worn thin; but they did not trouble me as on the bare hand. I use a hat with common window-screen wire around the rim, four or five inches deep; below that is mosquito-netting, gathered at the bottom with an elastic cord.

HIVES.

I read about hives with double walls and dead-air spaces, and have come to the conclusion they all amount to nothing, unless two important points are observed; first, a large strong colony; second, plenty of good food, that will last until they gather pollen. My reasons for thinking so are these: I have a friend (a lady) who raises bees, and, having a surplus, wished to dispose of some of them. I thought there might be a chance to replenish some of my empty hives; but when I saw them I almost stood aghast; some of them hung with one hinge that would hardly keep the door fastened; and one was a low square box, I might call it punk (that means rotten wood). It looked as if one should point his finger toward it, it would collapse. I did not purchase, for it was eight or nine miles from my home, and I knew I never should have courage to move them in such dilapidated hives. Now, will you please inform your readers what kept sixteen out of seventeen colonies alive through this hard winter? I think it must have been strong colonies, and plenty to eat; they certainly did not lack good ventilation. MRS. W. H. BENT.

Cochituate, Mass., Apr. 20.

[Mrs. B., your point, that good strong colonies, with plenty of stores, often winter nicely in the most rickety and exposed situations, is by no means new; and a good many times rickety hives winter all right when the others do not. This points strongly toward the necessity of an abundant ventilation of some sort, either bottom or top, especially when bees are exposed to the severity of the weather outdoors.]

HOW TO KEEP ON GOOD TERMS WITH OUR NEIGHBORS.

SOME EXCELLENT SUGGESTIONS FROM MRS. AXTELL.

We should follow the rule that Christ has laid down—to "love our neighbors as ourselves;" and if our bees trespass upon our neighbors, let us make good the harm and annoyance they make, not only by sending them cakes of honey, but by exhibiting neighborly kindness in many ways.

Soon we shall be setting our bees out of the cellar. Those of us who have near neighbors should send them word that we are about to set them out, so that they may not wash on such days, as it is very annoying to the good housewife to have her clothes all specked up, and her newly washed windows dotted. It is better to meet our neighbors more than half way in the matter of keeping peace, rather than getting their ill will, as it costs much more in dollars and cents in the long run, and kills all our influence for good over them and their children, and destroys our happiness and peace. It is no more than right to pay our just debts, that we send them liberal amounts of honey occasionally—yes, quite often, as our good neighbors seldom let us know when and how much our bees have annoyed them. How bothered they are with the bees around their horse and pig troughs! and even the little drinking-vessels of the children are at times swarming with bees. I don't know that they ever at such times sting the chickens, but they frighten their owners. The bees seem to prefer to frequent different places for water, even when they have an abundance at home in troughs of easy access.

There are many ways that the bees annoy our neighbors that we never know of—hanging around the milk-troughs; stinging the little folks as they tramp upon them in the damp places in the back yards; following the men while at work in the fields, sometimes, though more than likely it was some other neighbor's black or hybrid bees instead of our gentle Italians. Yet, because we have so many bees we get the credit of the annoyance. A few pounds of honey will sweeten the otherwise bitter feelings, and cause only good will and kindly feelings. Generally the neighbor will repay much of the gift in sending back in return something we appreciate as much as the honey, or doing kindly deeds.

We need not send our first-class section honey. Broken pieces or bulged honey, if nicely laid on a plate or in a bright tin pan, will be appreciated just as much. Often so kindly a feeling will arise that the neighbor will ask for broken or bulged pieces when buying, to help us make sales of it, realizing that it is just as good honey as whole sections.

In planting an apiary we should place the hives as far from the public highway as possible, and have them convenient to care for; also protecting them from the gaze of the public by planting a thick and quickly growing row of trees, or making a high board fence. I prefer the trees, as they are so much more handsome, and more permanent. We thus throw the bees so high over the road that passersby can not meet them in passing, and hide them away, as it were, from the public gaze. Many people are as afraid of bees as of death, almost; and if they were not where they could constantly be seen, they would pass by and not think of them.

We used to be so proud of our bees that we thought it nice to have them near the road, and to have people look at us while working with them. One Fourth of July a large swarm came off just when an open carriage of people was passing. The man put his whip to the horses, and drove right through the swarm, as it flew low. The people were very much frightened, but no harm was done. Another man, who often passed by, we noticed would always pull his hat low down over his face, and ride quickly by.

One day one of the commissioners of the highway politely notified us to move our bees into a back yard, and further from the road. We promised to put up a high board fence, or plant a thick row of trees, if that would answer. The trees were immediately planted about two or three feet apart. They quickly made a hedge, as it were, which threw them entirely above the road, most of the bees preferring to leave the apiary in another direction, rather than fly over the hedge of trees. Since then we have had no one find fault in that direction. In following the above suggestions we shall not be apt to need the aid of the Bee-keepers' Union very often, though it is a grand organization, and every one who has bees would do well to join it, as there are many unreasonable people in this world, and we can never know when we are safe or when other people have their rights. We need the Union to decide what is right.

At one time we were about to lose money by an unjust commission merchant. This was before we joined the Union. We made mention that there was such an organization, and he had better do what was right. The result was, he paid us $30.00, which we probably should have lost. I felt that it was a little deception on our part, but the organization did a good work for us, and is doing a good work, and is a blessing to those who are not members as well as those who are, as they promise to help only those who are members at the time of the trouble. It costs so little to be a member, I wonder that every one who owns bees does not join.

Roseville, Ill., Mar. 14. Mrs. L. C. Axtell.

AN UNPLEASANT EXPERIENCE WITH RUBBER GLOVES.

A GOOD SUBSTITUTE.

Twelve years ago I became much interested in bees. I subscribed for Gleanings and the A B C, and other publications; I also ordered a Quinby smoker, and a pair of rubber gloves from A. I. Root. I prepared a hat and dress for the work. I had previously purchased three colonies of bees, thinking I was making a good begining. I bought them for pure Italians. I could not then tell as to their purity, but they proved themselves good workers and good —stingers. It was amusement for me to look over my bees and look up the queen, especially if I had visitors. They must see my yellow queens. Soon my gloves were rotted by perspiration. The rents would come, and with them the stings. I would try to patch them, but they were so rotted and soft that the threads would not hold. I would try again and again, not knowing what could be better than rubber gloves. My hands would be so swollen I could hardly draw off my gloves, wet with perspiration, and covered with numerous new rents and stings. Discouraged and almost sick of my bees (for stings affected me very badly for the first year or two I worked with them), I went to Sherburne and bought a pair of boys' sheepskin gloves for 25 cents. I soon had them on trial. The bees literally covered them with stings, leaving their stings with the gloves. I thought I should soon lose all my bees in this way. Necessity is the mother of invention. I took honey and beeswax melted together. Then I rubbed my gloves well with this preparation. I had no more trouble, and have used such gloves ever since. I have worked the whole season without a sting on my hands. The Quinby smoker and A B C proved very useful to me. I have read Gleanings ever since, and would not be without it as long as I am interested with bees. I am pleased with the opportunity of visiting with my bee-keeping sisters through Gleanings. Mrs. Oliver Cole.

Sherburne, N. Y., Apr. 14.

COVERING FOR THE HANDS.

The discussion in Gleanings on this subject is very interesting to me, as my greatest objection to bee-keeping is, that I can't keep my fingers clean. I like best to have my fingers free, as I can work so much surer, and am not so apt to let the frames slip; but as we run mostly for extracted honey, it is hard work to keep the fingers presentable during bee-time. I have tried cotton and buckskin gloves, but we like woolen mits better than any thing else we have tried. They are made of rather coarse white woolen yarn, with long wrists, coming well down on the fingers, and ribbed all the way. They make a very good protection for the hands. The bees don't sting through them very much, and they are not uncomfortably warm. We lap and pin the bottom of the sleeves, then draw on the mits. They are tidy, and no bee can get in. But who can tell us the easiest way of getting the fingers clean? Or could we learn to work quickly and surely with the fingers bundled up? Once I had a pair of black mits, but they made the bees so angry we could not wear them. Mrs. M. A. Shepard.

Barry, Ill., Apr. 19.

ASBESTOS PAINT NOT SATISFACTORY.

I noticed in Gleanings, Mar. 15, A. W. Lindsey wants to know about asbestos paint. I have used it on hives, but I do not like it. It does not last. The last hives I painted I got lead and oil, etc., and mixed my own paint, and it is much better.

APRONS.

As aprons seem to be the topic, I will say that I get brown checked shirting. It is thick enough to protect my dress, but not so heavy and warm as bed-ticking. I have never worn gloves. I never thought I could work with them, but I wish I could, and prevent tan on my hands.

Benson, Vt., Apr. 7. Mrs. L. S. Austin.

THE BEES OF THE OLD WORLD.

P. H. BALDENSPERGER TELLS ABOUT THEM.

If we draw a diagonal line, beginning at Genoa, in Italy, and ending at Tripoli, in Africa, across the Mediterranean, we find the bees east of this line inclining to the yellow race—Italy, Greece, Turkey, and Egypt having the banded bees, while Tripoli, Tunis, Algeria, Morocco, Spain, and France have the black bee. Just as the banded Italian differs from its fellow-insect in Egypt, so does the black of France from that of Tunis and Tripoli. On the north of the Mediterranean the Alps are the limits, while on the southern shore the Lybian Desert forms a barrier. Again, if we compare all countries where Mohammedanism has had its sway for any length of time, we find those countries lying like a big crescent, one tip beginning at the Pyrenees, the concave line running down below Italy, and mounting again to the Bosphorus, including Greece. These have hives lying horizontally, and, as a general rule, worked more humanely than those in the region of the "cross." Italy forms the vertical axis; the hives stand upright, and the bees are sulphured every autumn, to take away all wax and honey. In southern Europe the bar-frame hives are finding their way with great difficulty.

In the south of France, the bee-keepers (or, rather, keepers of bees, for there are none that are real apiculturists) possess between five and one hundred hives, which they keep in long square boxes about three feet high and one foot broad. The top is nailed with a board, while the bottom is open, and put simply on a flat rock or stone, the unevenness of which forms different flying-holes. Some are also kept in hollow tree-trunks with big flat stones on the top, on an inclined plane for the rain to run down, and, at the same time, by its weight to keep the hive from falling in case of wind. Generally they place them against a wall to shelter them from the north and west winds. They expose them to the south or east.

It is a very curious sight to see a number of those hives standing upright and irregular, just as a flat rock may be right or left, up or down, in crooked trunks, with huge stones on top. I confess the apiaries away in Palestine or on the borders of the Nile, or in the wild recesses of the Atlas Mountains in Algeria, do not present such a novel and altogether savage aspect as does such an apiary in a civilized country, where every thing is flourishing except apiculture. How often, since I have been wandering about the Provencal Alps, and finding such neglected apiaries, have I put the question to others as well as to myself, "Why is apiculture so low in such a beautiful country abounding in fruit-trees, red and white clover, thyme, rosemary, heather, and a deal of other plants too varied to enumerate? They are free from taxes. The only answer I invariably got was, "The cruel winter kills so many bees, thus discouraging the farmers." I came across an old bee-book, written by an "Abbe Della-rocca," in Syra, in the Grecian Archipelago, and printed in Paris in 1790. The book is very ably written —or, rather, the three volumes—and it seems that, more than a century ago, the bees were treated here just the same as they are now; and the desolate priest says the cause of neglected apiculture in France is because the noblemen had a certain right on bee-hives; and, second, when the farmer could not pay the heavy taxes asked for the treasury, the tax-gatherers would take away his hives to fill up the sum. Disgusted with such robbing they finally gave up bee-keeping. Since then the French Revolution has put a stop to all these abuses; but still, apiculture has not come to its bloom. It was inevitable that the discouragement should then become so general that a century has not sufficed wholly to wipe away the bitter feelings that have so fast taken root in the French country people.

The way they now work the hives is as primitive as can be imagined. The swarms are lodged in a box or trunk of a tree, as above described, and left alone. In autumn all hives are visited, and 75 per cent are left untouched "for seed," as they call it. The other 25 are sulphured, and the combs, with the honey, sold to dealers who come yearly to buy all they can. The 75 are the stock left to swarm the following spring. Such hives are full of honey and pollen, and are capable of giving good swarms. This part is very humane, but not very remunerative to the owner. If the 75 have wintered safely, a good stock and strong apiary follow next year. They never (but in a very few cases) take out a part of the honey. In consequence of such treatment they want no smokers, no veils, and, generally speaking, no bee-keeping utensils. The honey and wax merchants are expert in this kind of apiculture, and take the hives destined to be sulphured to death, and weigh them. They then deduct the possible weight of the empty hive, and pay for the wax and honey per pound. They scrape out comb, honey, and dead bees, and put the whole into wooden tubs, taking as much as 150 lbs. of comb. The hives are then covered, and they thus go around from one apiary to another. When the wagon is well loaded they drive home. The comb is now broken up into the smallest possible pieces, and put into a stone trough having a wooden sieve at the bottom, thus permitting only the honey to pass; and by an outlet into a receptacle, such a trough may easily take over a thousand pounds. This first honey is sold on the market as virgin honey, mostly stored away in wooden barrels holding between 140 and 190 lbs. of honey. The residue of the trough is now put into flat baskets, having a small opening at the top to introduce the comb; and half a dozen such flat round baskets are now put under a large press, with a big wooden screw acting on the pile of baskets. On top of the baskets a board is laid to produce equal pressure. The honey from this pressing is impure, and is sold as second-rate honey in the same receptacles as the virgin honey. A good deal of honey is sold to the factories of Montelimar, Ardes, Aix, Nimes, Narbonne, etc., where honey-cakes are made. No Frenchman will pass his Christmas without having a taste of these honey-cakes, called "nongeats." Hundreds of thousands of pounds are consumed yearly. They are made of honey, sugar, and almonds. The trouble is, they keep only during the cold season. As soon as the hot weather comes on they begin to flow. Thus they are sure to be fresh every year. The comb pressed out is now put into a big caldron, and boiled. When it is well fluid this is put into the same baskets again, which are now furnished with long straw, and, as quickly as possible, put under the press again, and received in wooden receptacles. While the pressing is going on, boiling water is poured over the pile of baskets to keep the wax flowing. In some cases the farmers do the whole work themselves, pressing out the honey with their hands, and putting the boiled wax into a sack, and twisting at both ends to get the wax out. This wax is generally of a nicer color, as being better strained, while the honey is not as pure, having a mixture of pollen, wax, etc.

The bee in the south of France is black, showing some white bands at the first and second rings. The fuzz is strongly inclined to yellow; a slight tinge of orange marks both sides of the first ring. Very few men (as a rule no bee-keepers) have any movable-bar-frame hives, either Langstroth, Abbott, or Bastain. None of them have an extractor. They can have only a very little more honey than the "fixists." About Toulon, Cannes, and Nice, they move their bees on muleback to the higher Alpine regions in summer, putting the hives individually in sacks. tied at top. In autumn they bring them back again, and then take the honey in the manner above described. In Nice a single woman had a bee-hive in a cork-oak trunk, only the bark being used as a hive. She was selling comb honey right out of the hive. The bees, naturally enough, had been sulphured previously. The hive was well filled with sealed comb, and might have contained 40 lbs. of honey. No robbing was going on, as the hives are kept at some distance from town; and even Nice had such weather in January as to keep bees at home. They seldom have ice here, though. Flowers are sold all the year round. Foreigners from England, and even America, flock here in winter.

Ph. J. Baldensperger.

Marseilles, France, January 11, 1891.

[And so, friend B., honey-cakes are not a modern invention, after all. We are very much obliged to you for the birdseye view you give us of bee-keeping in the Old World; and we hope our friends mentioned by you will soon get into the modern ways, and throw aside their brimstone and rude hives.]

AN INTERESTING LETTER FROM CUBA.

500 COLONIES OF BEES IN ONE APIARY, WITH A PRODUCT OF 70,000 POUNDS OF HONEY IN A POOR SEASON.

Friend Root:—Another year has gone, and left behind it one more short crop. As this was the first season since I came to Cuba, when I have had what I called bees enough in one apiary to test the honey resources of any one locality, I naturally feel disappointed that the weather was such that it was impossible to arrive at any thing like an accurate estimate of what 500 colonies of bees in one apiary would do. Well, now, for the results. We began extracting Nov. 3 (that is, to go over the bees and take out what old honey they had left over from the summer, which amounted to only 500 pounds). The season was opening up fairly well, and the bees did well through November, we taking 10,400 lbs., an amount never before taken in the month of November. The first ten days of December we took 1200 lbs., and with us we think by the 10th of December the season is hardly begun; but on that very day a cold wave struck us, and for 47 days the wind blew from the north, cold, cold, every day. The cold weather in England, France, and Spain, did not spend all its force there; but in crossing the Atlantic it seemed to have got the "grip," and for eight weeks it held us Cubans with a grasp we could not shake off. The records show this last winter to have been the coldest since 1855. Now, from Dec. 10 to Jan. 27, 47 days, is the heart of our surplus season. To prove there was something wrong, look at the record of the last two years. The fall and spring of 1890 and '91 (then we had about 300 colonies of bees) in November we took 3600 lbs.; this year, with over 500 colonies, we took 10,425 lbs. Last year the first ten days of December we took 3275 lbs.; this year, 1200 lbs. Last year for the month of December we took 19,000 lbs.; this year for the same month, 24,400. Last year in Jan. we took 25,500 lbs.; this year, same month, 19,025. Last year in Feb. we took 5500 lbs.; this year, 10,400 lbs. Last year in March we took nothing; this year 6150, making for the crop 70,250 lbs. By looking at the amount of honey taken in the two last seasons, and comparing dates, you will see that, up to the 10th of December (when the cold weather began), we had taken 22,400 lbs., against 6875 lbs. for the same date the year before. Then you will see, in January we took only 19,025 lbs. against 25,500 lbs. the year before, and we consider January much the best surplus month of the year; but it was too cold this year.

I think I told you last year, that, when the business here is so managed that two good active men can take care of 500 or more colonies in one apiary, and take 75,000 or 100,000 lbs. of honey, then the business would pay. Now, with such a winter as this last one has been, we have produced 70,000 lbs., and at this date our bees are in fine condition, with hives full of bees and honey, and swarming daily. Does this crop and the conditions under which it was taken, prove to the advocates of 50-colony apiaries that 550 can be made to pay all under one roof, and controlled by one management and set of hands and fixtures? Results have placed it beyond the reach of doubt. It is no longer a question, "Will it *pay?*" but, "How can we best take care of the crop as fast as it is stored, with the least possible outlay of money and manual labor?"

Give me a common Cuban winter next winter, and if I do not produce 50 tons of honey from one apiary, then it will be very much different from what I expect: for I know this last one has been but a very little more than half a crop. This result has been obtained against the advice of all the novices and the would-be experts, both in Cuba and the U. S.—men who knew as much about the honey resources of Cuba as I know what the strides in the science of electricity will be in the next 50 years.

THE HOFFMAN FRAME NOT SUITED FOR CUBA.

You have called for an expression from "Southern bee-keepers" upon the Hoffman frame. I do not like the frame for Cuba nor for California. I can not do any better than add my testimony to that of W. W. Somerford, of San Miguel. I could not bother with such an arrangement here. We could not get out 50 frames a day here, where the bees glue every thing fast, unless there is plenty of room for them to pass freely all around. Then they will not stick them. When I first came to Cuba in 1883 I was prevailed upon to bring some of the Hoffman frames; but after a trial I took the hatchet and made open top and side frames of them, and have not tried any since. We have our frames hung on tin rabbets that are thin on the edge, so there is no chance to stick them. You know we have to go over our bees every week. Well, to go over 550 colonies in six days, and extract the honey by hand, there is no time to lose in fussing and prying to get your frames out of the hives. I would not for the world say any thing against the closed top and end frame in localities where there is hardly any propolis; for those that use and like it would get mad about it.

TWO VS. SIX FRAME EXTRACTORS.

There are many things used in small apiaries that would hardly do for us here. We have to adopt the fixtures that arrive at results with the least possible waste of time. For example, this year we ran two six-frame extractors and a comb-cart holding from 80 to 85 combs; and, had the winter been like those I have seen since coming here, we should have been behind in getting the honey out of the way of the bees; but as it was, we kept up with them very nicely. We could hardly think of depending on a two-frame extractor to throw our honey out; and for a man to think of carrying the honey in a hand comb-basket would be as discouraging as the other.

THE FUTURE OF CUBAN HONEY.

Friend Root, as we go on from one year to another in any business, we arrive at conclusions as to whether the enterprise is paying or not, and the probable outlook for success in the future. I started with this business here when it was indeed an experiment—when the movable frame was a wonder in the eyes of the Cubans; when all you could get for a gallon of honey was 35 cents; but now it brings 50 cents net (for we get pay for all the packages); and if the duty is ever removed, so that when you fellows get short we can send you a little to help you out, why, then we shall get more. So after the experience of the years I have been here, I can not but feel the greatest confidence in the future of Cuba's honey crop. It will go on and ultimately reach that grand climax that is enjoyed by him or that country that stands upon the top round of the ladder. The business is passing into the hands of the actual producers—men of more or less experience in honey-raising, and as such is always a step in the right direction, and it can not but result in a permanent good to the business and all concerned. A. W. OSBURN.

Punta Brava de Guatao, Cuba, April 8.

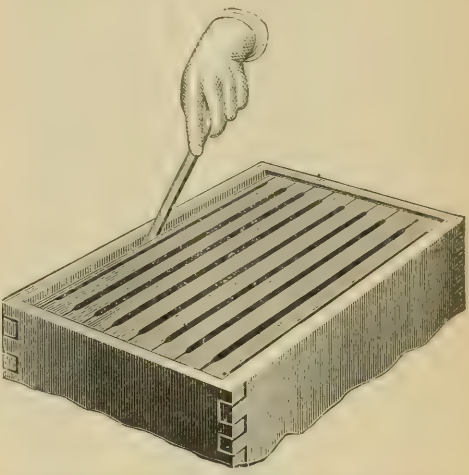
[You ought not to complain very much about your past season as a poor honey year. It may not have been up to the previous year, but 70-000 lbs. of honey—my ! you ought to be satisfied. Honey seasons in most localities are a variable quantity, you know.

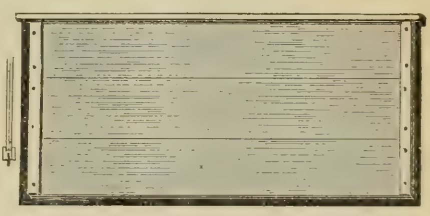
I am glad of your testimony in regard to Hoffman frames for Cuba; but, say, don't your tin rabbets get filled with propolis if you have so much of it? Our hybrids have done it for us more than once, and we can get along with Hoffman frames. Don't get the idea into your head that Hoffman frames are used by *small* bee-keepers. Hoffman himself has some five or six hundred colonies on them, and there are other bee-keepers who have two or three hundred colonies on them. In regard to propolis, I saw as much in the region where nearly 10,000 colonies are used successfully on closed and partly closed end frames, with success, as I have seen in any part of the U. S. I believe there are very few places in the U. S. where, because of the excess of propolis, Hoffman frames can not be used. Some parts of California and the southern part of the country may be among the excepted localities.] E. R. R.

THE HOFFMAN FRAME.

HOW THE INVENTOR USES IT, AND HOW ITS MANIPULATION COMPARES IN SPEED WITH THE LOOSE FRAME.

Friend Ernest R. Root:—My hive holds eleven frames without spacing-board; but to handle frames fast there ought to be at least one spacing-board and one frame less in the hive, which will give room to handle and get the frames apart without removing any from the hive. For separating and closing up partly closed-end, or the so-called Hoffman frames, I use a stout screwdriver or chisel, which, in closing them up, is inserted between the spacing-board and hive-wall, and with a single motion the frames are pressed together firmly (see cut). In this way the whole set of frames, or any number of them, can at any time be shoved from one side of the hive to the other, which I found quite a saving of time. The crowding together of the frames before closing the hive is very important, as any space left between the close-fitting parts of the frames will, of course, be filled up with propolis by the bees, and would prevent close fitting when the frames are interchanged. If, however, any propolis should accumulate between the close-fitting edges, this pressing together in warm weather will easily remove it. If the hive is used for comb honey it will, of course, be better to use two or more spacing-boards, according to the number of frames the bees are allowed. Two spacing-boards will also be needed in preparing the bees for winter, so that a vacant space is left at each end or side of the hive, between the spacing-board and the hive-wall. Into these open spaces the quilt or rag, covering the frames, is tucked down. If as it should be, only seven or eight frames being left in the hive for wintering, good heavy covering can be used.


MANNER OF CROWDING HOFFMAN FRAMES TOGETHER.


SPACING-BOARD WITH RUBBER EDGES.

The spacing-boards, see cut, are suspended like the frames, and are made smaller than the clear of the hive, to leave a bee-space at the sides and bottom of the hive, so as to work free, and also not shut out any bees by closing the hive. A strip of stout rubber cloth, about as long as the frames are close fitting, or nearly half way down, is grooved in the edge of the spacing-board, which strip is wide enough to crowd well to the sides or ends of the hive. This arrangement will hold the spacing-board and frames in place sufficiently, and also prevent the escape of warmth from the upper part of the brood-nest. Such boards will never be glued fast by the bees, enough to hinder the easy removal of the same.

WHY THE HOFFMAN FRAME IS SUPERIOR TO THE LOOSE FRAME.

The great advantages of close-fitting over the swinging frames in moving and carrying hives have been stated in GLEANINGS by others and myself, and I think they must be conceded by all practical bee-keepers. *In regard to rapid handling of frames in working bees, I will venture to say that I can, with my frame, work nearly double the number of colonies that I could with any frame that is not spaced or close fitting.* As you, friend Ernest, wish that some of us "closed and partly closed-end friends" would not be quite so modest, I will here indulge in a little bragging, and say that my partly closed frame, as a hanging or suspended frame, has one great advantage over the standing close-fitting frame. It is a fact, as I have it from some extensive honey-raisers who use the standing frame, that very often they have to suspend work on account of robbing, when such hives are taken apart and frames handled. It is for the bees very much like pulling down their house, and robbers have too much of a chance at them. In a box hive with hanging frame, the robbers can, when the entrance is guarded, attack the open colony only from the top of the hive, and can easily be managed by smoke.

HOW TO CIRCUMVENT ROBBERS IN AN OUT-APIARY.

As robbing is one of the worst troubles of the many that belong to bee-keeping, I will explain how I manage this difficulty. As soon as I find the bees are inclined to rob I take a small bunch of grass, clover, weeds, or some leaves of shrubs or trees, and stuff the entrance of the hive quite loosely before I open the hive at all. In this way robbers can not get in after the hive is closed again and disappear. Soon after, the green stuffing shrinks and drops away from the entrance, and the bees have their door opened again without any attention from the bee-keeper. If it were not for this little invention I could not, when bees are robbing, as I have done now for several years, work and finish an apiary of 100 colonies or more, within one day, in a continuous job, without being troubled a good deal. JULIUS HOFFMAN.

Canajoharie, N. Y.

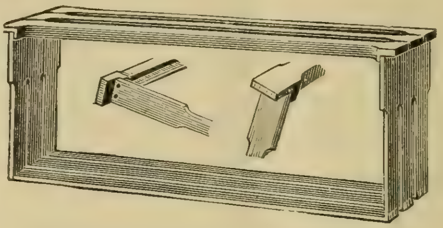
THE HOFFMAN FRAME.

ADAPTED TO THE L. SIZE OF HIVE; FURTHER PARTICULARS ON HOW TO MANIPULATE;

BY ERNEST R. ROOT.

Some time ago Mr. Samuel Cushman, of Pawtucket, Rhode Island, made a statement to the effect that, if he were the editor of a bee-journal, he would set forth the real merits of the Hoffman frame, and describe minutely, with suitable and accurate engravings, its manner of manipulation. Although much had been said in regard to the Hoffman frame at that time, he was satisfied that its real points of excellence had not yet been fully described. Our friend Mr. Hoffman, in the article preceding, has covered the ground pretty thoroughly; but as his description applies to a deep hive, I have thought best to have some photographs taken, illustrating the method of handling the Hoffman frames, as adapted to the Dovetailed hive, with its L. size of frame. I accordingly took a Dovetailed hive filled with Hoffman frames, and over it I struck several attitudes, and then had Mrs. Root photograph me in those positions. Our engravers have now reproduced them.

I will first show you a cut of three Hoffman frames, without any comb in them, standing side by side, as if they were stuck together with propolis. This cut shows a little more accurately how they are made for the Dovetailed hive. The top-bars are ⅝ inch thick, and at the narrowest part are $1\frac{1}{32}$ inches wide. This width continues until within ¼ inch of the end-bar, where it then enlarges to 1⅜ inches scant.



HOFFMAN FRAME ADAPTED TO L. SIZE.

It does not seem to be altogether clear yet why the top-bar should widen out near the ends. I will explain again, that it is for covering up the wood rabbet entirely, so that the bees can have no occasion for chinking in propolis. We will suppose that the top-bar is $1\frac{1}{32}$ inches wide its *entire* length, and that the end-bars are as shown in the cut. As these are spaced frames, it is evident that the top-bars will rest in the rabbet exactly in the same place at all times. In a few months' time, if the frames be all lifted out, the places in the hive-rabbet not covered with top-bars will be thickened and stuck up with propolis, and those covered by the ends of the top-bars will be comparatively clean. In process of time, especially with hybrids, these exposed places in the hives will receive further accumulations of propolis, until the ends of the top-bars, so to speak, will rest between the notches of bee-glue. Now, the great "function," if I may borrow a term from Mr. Heddon, of the Hoffman frame, is a lateral sliding motion. With masses or notches of propolis placed at regular distances, this lateral motion is impracticable. "But," you say, "why is this not true with the ordinary loose frames?" For this reason: Loose frames are never put back exactly in the same place in the rabbet; and the result is, that the wooden rabbets are covered about equally with propolis from one end to the other. To avoid the regular masses of propolis, the inventor, Mr. Hoffman, had the top-bars enlarged at the ends, so that, when the frames are all in the hives, the rabbets will be covered up entirely. You may examine the wooden rabbets of hives that have had these frames for years, and you will find they are about as free and clean from propolis as they were when the hives were first made. This is not guesswork nor theory. I saw it in Mr. Hoffman's yard.

If you use tin rabbets you can get along very well with top-bars the same width throughout; but those of you who have had hybrids to any extent, know that they will sometimes fill tin rabbets level full with propolis, and then you have to go and dig it out again. By Mr. Hoffman's plan, the worst propolizing bees known are circumvented in the worst propolizing localities. If you use Italians and tin rabbets, you will never have any trouble about the rabbets being filled with propolis, and you could use the Hoffman frames with straight top-bars.

So much for the construction of the top-bar. There is no need of discussing the need of having a wide end-bar near the top. Its office in preventing the bottom-bars from knocking together during moving or otherwise rough handling, is too evident to need discussion.

HOW TO MANIPULATE HOFFMAN FRAMES.

Mr. Hoffman has already given, better than I can, the advantages in the use of a spacing-board, or "follower," as we call it in our price list, so I will not dwell on that point. We will now proceed to open up a hive having Hoffman frames. One of the conveniences, and almost necessities, is a small screwdriver. This, or a good strong knife, is something that almost every apiarist uses nowadays. With a screwdriver or wedge I pry loose the flat board cover of the Dovetailed hive, having previously blown a little smoke in at the entrance.

The cover removed, I place the same under me, and sit down on it milk-stool fashion (see Fig. 4). You will observe that the cover is a seat on which we can lean backward and forward. This I find is a great convenience, in that the body can be leaned toward or from the hive; and, the elbows resting on the knees, they can support quite a heavy weight, in the way of two or three Hoffman frames. You may argue that you would not sit down on the narrow edge of a ⅞ board for anybody or for any money. I will say in reply, that, in handling Hoffman frames, so short a time is occupied in examining the hive that no inconvenience will be experienced; and, besides, there is no law to compel you to sit in any one attitude over every hive. Comfort as well as convenience sometimes suggests a standing as well as a kneeling posture, though usually I prefer to sit down on a cover. Well, to return.

A little smoke is blown over the top of the frames. The wedge that holds the follower, or spacing-board, against the frames, is next removed; and while the wedge is in the hands, the follower is leaned against the hive opposite to where we are sitting (see Fig. 4). With a screwdriver or wedge, we pry apart the first pair or trio of frames, if the frames are not too heavy, and lean them against one corner of the hive, as shown in Figs. 4 and 5. Don't you see we pretty nearly handle the brood-nest in halves and quarters?

You will notice that these frames will hang together by propolis, and that the bees on the two inside surfaces are not disturbed at all. The loose frames, when out of the hive, have got to be leaned against one or two corners of the hives, against each other—in fact, be scattered all around for the depredations of robbers; and, besides all that, the liability of killing bees or the queen is much greater. This is a big point in favor of the Hoffman frames. If we do not find the queen on the frame in hive, pry off the outside frame of a trio leaning against the corner of the hive. If she does not appear on that one, pry off the next one, and so on.

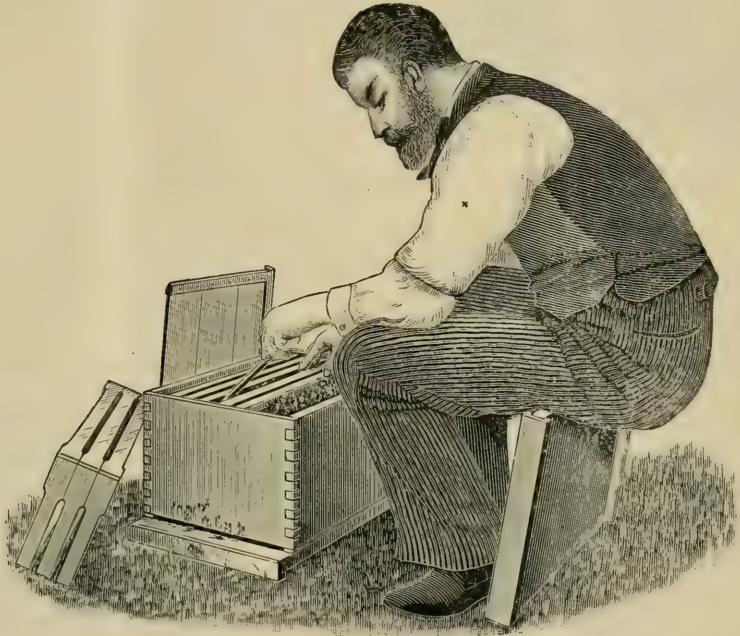


FIG. 4.—HOW HOFFMAN FRAMES ARE MANIPULATED.*

If frames are heavy with honey, we may lift out only one frame. Having seen the surfaces of two or three combs, the practiced eye will get a pretty fair idea of the condition of the colony and what the queen is doing. If we see eggs and larvæ in all stages, as well as sealed brood, we do not usually bother to hunt up the queen; so we put back the second pair removed, and finally turn the trio as shown in Figs. 4 and 5. Now, as Mr. Hoffman explained in his former article, we generally crowd these frames together at once. We blow a little smoke down between each of the end-bars, and then with a quick shove see Fig. 1, in Mr. Hoffman's article, we close them all up again.

There is no cut-and-try spacing as with loose frames—no big and little fingers to get the distances at wide and narrow spaces. There is no continual instructing the beginner on just how far to space combs, and there is no finding the apiary afterward, with the combs spaced so far apart that spurs of combs are built where they ought not to be. No, with Hoffman frames the spaces have got to be exact, and the combs will have a fixed and definite thickness: and I do not hesitate to say that you can alternate them just as well, and even better, than you can many of the loose frames. Let me explain. Space the loose frame during the honey-harvest, anywhere from $1\frac{3}{8}$ to $1\frac{1}{2}$ or even $1\frac{3}{4}$ inches from center to center, and then, after the honey-harvest, try to alternate it with other frames placed a little closer, and see where you are. You may say you can space frames near enough right. Although I have visited many large apiaries, I never saw a loose-frame apiary spaced near enough right, unless it was Mr. Manum's home apiary. He is one of those precise men who are bound to have every thing just so.

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* Although I sat for the picture, our engraver has very kindly put another head on my shoulders; therefore you will not detect any striking resemblance between your humble servant and the substituted head. E. R. R.

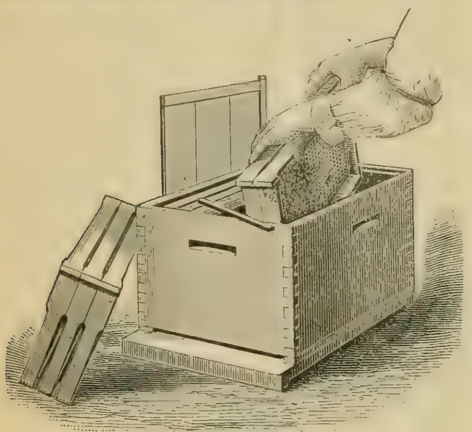
FIG. 5—HANDLING HOFFMAN FRAMES IN PAIRS AND TRIOS.

Well, now, then, we will replace the follower, and with the wedge, as shown in Fig. 1 of Mr. Hoffman's article just preceding, we crowd the frames tight together; then the wedge is pushed down between the follower and hive. If the follower is only ⅜ of an inch thick it springs a little, and this will take up any unequal swelling or shrinking in the Hoffman frames (if there should be any) through changes of atmosphere, from extreme wet to extreme dry. If there are any bees on the tops of the frames, a whiff of smoke will usually drive them down, and then the cover is replaced with a sliding motion, which I have already explained.

Perhaps from my description about manipulating the hive with Hoffman frames, it may appear like a very long operation; but I can assure you that it is a very short one. Now, right here I will ask you to look at the italicized sentence (the italics are mine) in Mr. Hoffman's article just preceding. Observe that he says he can handle nearly double the number of colonies on his frame that he could on any loose frame; and I will add right here, that he used loose frames for years, until necessity, the mother of invention, caused him to bring out this style.

Mr. Hoffman makes another big point; namely, by removing two or three frames in a trio, the rest of the frames in the hive need not be lifted out at all. They can be slipped back and forth, and each surface examined; but if the rabbet is covered with pieces of propolis, this lateral sliding is not easily accomplished.

Mr. Manum proposes to handle some 400 or 500 colonies on loose frames alone. Why, bless you, Mr. Hoffman has been doing this for years on his close-fitting frames. "Alone," did I say? Well, practically amounting to that; and he is an extracted-honey man at that.

THE HETHERINGTON-QUINBY HIVE.

WHY QUINBY FRAMES DON'T KILL BEES.

[*Continued.*]

In hooking frames together I have found some bee-keepers who, after using this hive for years, were still ignorant of the proper way of handling them. They pushed the edges of the frames together from the side in such a manner as to kill the bees between them; or, if the motion was slow enough to permit the bees to get out of the way, too much time was consumed in the operation. Now, the proper way is to bring them together as shown in the engraving, Fig. 2, when a half-inch motion in the direction of the arrow puts them in place, shoving off the bees from their edges instead of crushing them; that is, end-bar C slides the bees off the end-bar B. This is a very important point, and the proper observance of it makes all the difference between total failure and magnificent success in the practical working of the hive. It is a point, also, in which our hive is ahead of the excellent Hoffman hive, and all other closed-end hanging-frame hives. In these there is not room inside the hive for this longitudinal motion. I have known other bee-keepers to fail with this hive because it was not properly made. If the hooks on the frames are not put on right, or if the groove on the bottom of the board is too deep, there is nothing but vexation in store for the bee-keeper.* In handling frames it is well to observe that we do not have to reach down among the bees to pick up a frame, but take hold of it at the outside, where there are usually no bees, thus saving time in picking it up, if not always in letting go of the same. (See Fig. 1 in former article, p. 317.)

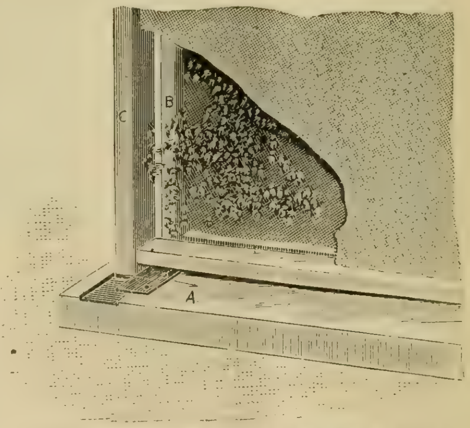

FIG. 2. HOW THE QUINBY FRAME AVOIDS KILLING BEES.

The day was dark and rainy when Mr. Root and I visited the out-apiary. The colonies were populous, and the bees were all at home; in short, it was such a day as bee-keepers usually prefer to spend in the shop. The smoke-wood was damp, and the smoker refused to give out its usual volume of smoke until after we had finished our examination of the bees, after which it smoked exasperatingly well. Now, had our hive been difficult to manipulate, those hybrid bees would have stung us severely; but Mr. R. has already testified to their good behavior at this time.

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* In Fig. 3, *C* (re engraved from Cheshire), it is shown correctly; *h* is the hook that engages the strap iron *ip*, and *gr* is the groove in the bottom-board *bb*. This arrangement was designed by Mr. Quinby to keep the standing frames from toppling over, and also to hold the end-bars in alignment. The hooks are on the outside of the hive proper, and hence do not kill bees; nor are they filled with propolis as some have imagined. *A* and *B* in the same figure are respectively the frame and follower. They are somewhat out of proportion.—Ed.

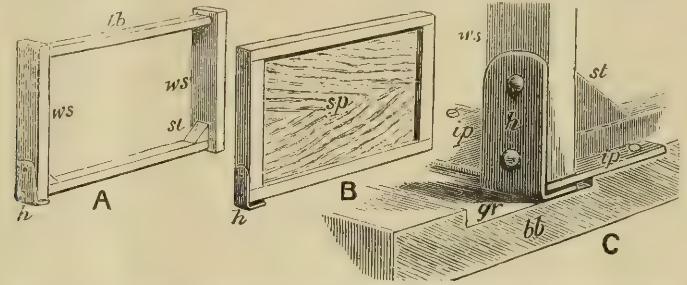

FIG. 3.—HOW THE QUINBY FRAME HOOKS ON TO THE BOTTOM-BOARD.

Our test of hives is very severe; for, during the swarming season, we do not stop for weather. No matter how threatening the weather, we start off unless it actually rains. We seldom start in a rain unless there is good prospect of its soon stopping. When there we work unless it rains too hard to safely open hives; and even then, when hard pushed, we complete our work under umbrellas.

WHY QUEENS CAN BE FOUND READILY IN QUINBY HIVES.

It is well known, that, in finding queens, a bright day is better than a cloudy one, and very much better than if it is alternate sunshine and shadow. That is, a uniform light free from shadows is best. Our hive is so constructed, that, when opened up, there are no sides to cast shadows on the interior (see Fig. 1, p. 317). When one comb is removed, the light striking the exposed side of the next is uniform, and not only less trying to the eyes, but queens are found more readily. Of course, you sit with your back to the sun. In the hanging-frame hive, the queen often steps off from the comb to the shell of the hive, and passes from there to the combs already looked over, thus making it more difficult to find them. At any rate, the claim has been made and substantiated, that, in the Quinby hive, queens are more readily found than in the hanging-frame hive. This is an important advantage; for, when queens are hunted, time is usually limited.

One morning, after Capt. Hetherington had started off his men and wagons to the out-yards, he jumped into a buggy and drove to a yard of about 70 populous colonies. He clipped the queens in this yard, and from there proceeded to another yard, clipped the queens in this also, and returned home in time for an early supper. This is not mentioned because it is thought rapid work, but to show that our hive is not a slow one when worked by a fast man. Many a man who calls our hive a slow one to manipulate would have taken twice this time with his own. Of course, it takes time and practice to learn how to manipulate any hive.

ADVANTAGES OF CORRECT SPACING.

One thing that does not have to be learned with us is to correctly space frames, which requires much skill and time; and to space loose frames 1⅜ inches or less, without destroying brood, requires more patience than the average bee-keeper possesses. A single glance at the bottom of the frames of the common swinging-frame hive will convince any one that its owner should speak authoritatively on proper spacing, for he has all distances, from 1¼ inches up. This is the man who says, "No fixed distances" for him. Thick irregular combs, of which he has plenty, and knows no way of curing, except to cut them down with a knife, he thinks best not to crowd together, but will often take nearly two inches to space such combs. He can do no better; for, if the honey is crowded together at the top, it usually throws the bottoms apart and against the next comb.

CAN FIXED FRAMES BE ALTERNATED?

*Neither Mr. Hoffman nor ourselves are troubled in spacing irregular combs—he at 1⅜ inches, and we at 1½ scant. With foundation carefully placed in the center of frames, and with combs always the same distance apart, we do not have so many bulged combs.** In the spring, brood-combs are oftener interchanged than at any other time of year; and at this time I have experienced no unpleasant results from crowding honey up against honey, as occasionally happens, for it gives the bees a chance to cut down the combs to their proper thickness at a time when they can use the surplus wax to advantage. After swarming time, the less the brood-nest is disturbed, the better; for bees have a way of fixing themselves for winter that man can not improve upon.

CLOSED ENDS FOR WINTERING.

Mr. Quinby tested this hive for many years in wintering, and was satisfied with it. For several years before he died, his average loss in winter was less than two per cent, and this with the most disastrous loss around him. Capt. H., in his cold climate, also winters well in it. With a bottom entrance (see Fig. 1, p. 317) as I make it, this hive may prove also best for wintering in the South. The trouble in the South in winter is, that bees fly out, and many are lost on sunshiny days, thus weakening them too much. With a shade-board on top of our hive, bees would not fly nearly as much as from the hive in common use. Capt. H. prefers and uses a front entrance, as did Mr. Quinby, and this is undeniably better at certain times of the year; but for winter, and also for hot weather, I prefer the bottom entrance.

HOW BEES ARE KILLED IN LOOSE-FRAME HIVES.

Mr. Root has already told you how few bees are killed in working our hive. There are some killed with every hive, but in the hanging-frame hive the killing and maiming take place largely out of sight. When frames are not raised or lowered perpendicularly, either sidewise or endwise, the work of destruction goes on from combs rubbing or hitting each other, or from frames scraping the side walls of the hive. Also quite a few bees are crushed on the rabbets.

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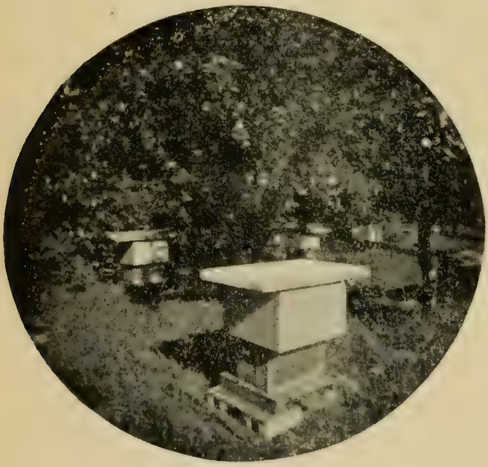
* Italics are mine. E. R. R.

There is no need of looking for all the good points in any one hive, for such will not be found; but, rather, as in selecting a harvesting-machine, look for a good combination of the best features of many. In writing this I am not endeavoring to prove that this is the only hive fit to use, for there are many such. I wish to show that this hive has many good points, some of which it has never had credit of possessing. I believe the day of unspaced frames is drawing to a close, and that the use of spaced frames is to become quite general, either with open or closed ends, or a compromise between, as Hoffman makes them. P. H. ELWOOD.

Starkville, N. Y., Feb. 26.

[Now that the merits of the Hoffman and Quinby frames have been fairly presented with engravings (the two best fixed frames, as I believe), the beginner, in view of the merits inherent in each, may be somewhat confused as to which one he should adopt, or whether, forsooth, he should choose either. In the first place, at the risk of using an old stereotyped expression *ad nauseam*, I will urge again, go slow. What may suit one may not suit another. Try a few and decide for yourself. As between the Hoffman and the Quinby systems, perhaps I should make a suggestion right here. As ex-President Cleveland once said, "We are presented with a condition and not a theory." No matter how much we may *desire* to adopt the Quinby system in toto, a great majority of us have on hand our old-style hives that are adapted for *hanging* frames, and these old hives we can not afford to throw away. If we make any change at all, it will, of course, be wiser and cheaper to adopt the Hoffman frame, because it can be so readily adapted to hives already in use; whereas the closed-end frames on the Quinby system, with its hooks, would require a change throughout. In view of the arguments that have been presented for both systems, it is pretty hard to decide which one we like the better; but the aforesaid condition, namely, old hives already in use, should influence the decision in favor of the Hoffman frames.



HETHERINGTON-QUINBY HIVE.

Perhaps I should add that, in my eyes, the Hetherington-Quinby hive does not look as neat as the hanging-frame hive. Here is a Kodak view that I took of one of the hives when the bees stung me so unmercifully, and caused their owner to retreat on a double-quick pace.

This shows one of Mr. Elwood's hives rigged for comb honey. It seemed to me when I first saw these hives, that they would tip over very easily, being in appearance somewhat top-heavy. Mr. Elwood assured me, however, that no such mishap had ever befallen them. A stray calf once got into the apiary, and I presume, on account of the disposition of those buckwheat hybrids, he became a little "rambunctious." At any rate, he tipped over one of the hives; but no damage was done.

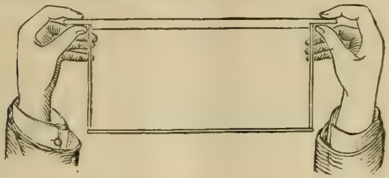
I might add, further, that a plain box with hanging frames, either fixed or loose, tiers up a little nicer than a series of closed-end frames with panels for sides. Moreover, the feature of *hanging* frames, whether at fixed distances or not, is something that the most of us familiar with it would be very loth to give up. The Hoffman is a hanging frame and has nearly all the advantages of the Quinby, with some others peculiar to itself; and I may add that the closed-end frames have advantages peculiar to them not found in other styles. Supply-dealers are willing to give bee-keepers whatever they demand, and therefore leave the matter largely for them to decide.] E. R. R.

HANDLING FRAMES.

THE GENERALLY ACCEPTED METHOD; A HINT TO BEGINNERS, FROM C. A. HATCH.

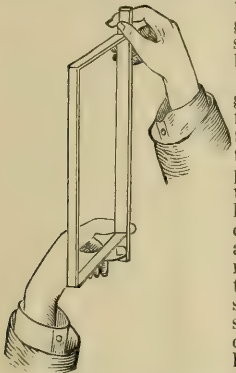
As you are going to have handling of frames with fixed distances in GLEANINGS, why not have handling of other frames also? That every bee-man is not proficient in handling frames of even his own hives, I was convinced by acting as judge at our State Fair a few years since. A premium was offered for best method of handling bees; and, as I now remember, there were four contestants, some of them veterans, and yet two of the four broke out combs or cracked them badly in handling, simply to find the queen. Another thing that convinces me that all have not the knack of handling L. frames rapidly, is, that they use metal corners, which entirely prevents rapid manipulation in hunting for queens, examining brood, or any operation where single frames must be handled. I had a talk with Prof. Cook once on this subject, and I found he used the same method as here described in instructing his bee-class, and so the method has good indorsement.

The right side of the hive is rather the best position to operate from, for then you can hold the smoker in the right hand to throw smoke into the entrance, and you can set it on the ground near by, and it is easily reached by the proper hand to use. After having subdued the bees, take your screwdriver, or whatever tool is used for loosening the frames, in the right hand, handle up and thumb up, as if it were a dagger and you were going to stab. Take the frame next to you. First loosen by pushing the screwdriver handle from you, while the point is between the frames; grasp the frame at the other end with the thumb and forefinger of left hand at same time, and usually the frame will be loosened. Now take the right-hand end in the same way; and as you bring it up straight out of the hive, move each thumb under the projection of the top-bar, so that its whole weight will come on the ends of the thumbs while the fingers serve to steady it on the side from you. This brings the frame in front of you so you can examine one side. This we will call the first position, and here is where most mistakes are made. In order to get to the next position the bottom-bar is either brought toward the operator, or it is turned away from him until the opposite side of the frame can be examined. In either case the comb is not properly supported by the frame; and if new, and the weather warm, it is liable to drop out by its own weight. The position is also trying on one's hands and fingers, which might not be noticed on a few hives, but will tell in a trying way where it is followed all day.



FIRST POSITION.

There are usually but three parts of a frame to be examined; viz., two sides and the bottom. Unless the colony is unusually strong, no bees will be on the end-bars; so all we want is three positions of the frame to have it all gone over. We have given the first, and now to get the second. To examine the bottom, raise your right hand, keeping the thumbs in the same position, also lower left hand at the same time, and bringing it toward you also until one hand, the right, is directly over the other, the frame standing on end. While raising your right hand, allow the bottom of the frame to swing toward you. This will give you the second position to examine the bottom.



SECOND AND THIRD POSITIONS.

The third position is got by allowing the frame to swing around to the left, like a door, the top-bar serving in place of hinges. After this side of the frame has been examined you can let it swing on around, and you have it ready to put back into the hive in just the same way it came out, so far as the frame is concerned; but you are holding the frame in an entirely different way, as it now rests on the second joint of the first finger instead of on the thumbs, the latter being on top of the frame instead of under, as at starting. It is a kind of sleight-of-hand you have performed, but not hard to learn when one sees it done, but not so easy to put on paper. It always keeps the comb in a perpendicular position, so it can not fall out, if never so brittle or weak, and yet every side has been toward you, and the hands have not been changed nor the frame laid down. If you have never handled frames in this way, try it; or if any one has a better way, let him come forward and explain it. C. A. HATCH.

Ithaca, Wis., April, 1891.

[Your method of handling frames, friend H., is the same one that we use, and I think it is generally accepted as the right one, especially if the frames are unwired, and combs are tender. In either case, if they are very heavy it is almost a necessity, in order to examine both surfaces, to handle combs on the swinging-door plan. Your instructions will apply exactly to the Hoffman frames, with the exception that they would be handled more in pairs, and the two outside surfaces could be examined the same way that we examine the two surfaces of a single comb. Closed - end frames on the Quinby plan are handled by the centers of the end-bars; and the weight, instead of being supported on the fingers, is held by the whole hand.]

PLANT-LICE AND THEIR PARASITES.

PROF. COOK TELLS US WHEN AND HOW TO FIGHT THEM.

Mr. Edward J. Knebel, Spring Branch, Tex., sends me by mail some insects which are very destructive to cabbages, mustard, and other cruciferous plants. He desires me to comment upon them in GLEANINGS, and desires to know whether it is possible to destroy them without injuring his plants or endangering his bees.

These insects are the common cabbage aphis (*Aphis brassicæ, Linn.*). It is quite common all over our country, and at almost all seasons when these plants are growing. Even in winter it may be found on cruciferous plants in our conservatories. Like all plant-lice it increases with remarkable rapidity, and so, very often, the plants will be covered with the lice. More than this, like all aphides it is very harmful, so that plants attacked are sure to languish and even to die if the lice are very common and abundant. Fortunately these and all plant-lice are very subject to attack from parasites, species of a minute *braconid* fly. These flies lay their eggs in the lice, and their young feed on and destroy the lice. Rapid as is the development and increase of these lice, yet they are eclipsed in both respects by this tiny parasite. While they run up to thousands in a few days, the parasites increase to tens of thousands in the same time. How strange! A tiny insect, hardly as large as a pin-head, overcoming an enemy so mighty, that, if left undisturbed, it would bring famine and want. Yea, it would often desolate the earth.

If Mr. Knebel will observe closely he will find many lice on his plants—that is, if the parasites have not already wiped them all out—which are short and globular, and of quite light color. These all harbor the *braconids*, and thus their doom is sealed. Instead of bearing young, they will soon die and give rise to a fly that will victimize scores of lice. Of the aphides sent, I saw many of these rotund light-colored lice, and so I feel sure that Mr. K.'s plants will soon be freed of the pest that has sought to destroy them.

I presume Mr. K. will need no remedy other than that which nature has provided; but as he asks for one, I will give it in the kerosene emulsion, which is entirely safe. This is made as follows: ¼ lb. of soap is dissolved in a quart of boiling water. To this, while still hot, 2 quarts of kerosene oil are added, and all violently stirred till permanently mixed. It now looks like rich cream, and will not separate upon standing. For all plants, add water till one fourteenth of the whole is kerosene. Stir a little, as all unites freely. Apply to plants affected with plant-lice, with pump or syringe, as the liquid should be thrown on with *much force*, so that every louse would be struck. This is also good for vermin or lice on cattle, horses, and dogs. In this case we add water till one-eighth is kerosene. That is, it should be stronger. Now wash thoroughly, on a warm day, the horse or cow, and use a syringe to treat the hog, which, from its more sparse hair, is more easily reached. Cattle, etc., can be treated in cold weather by blanketing warmly as soon as the washing is completed. The advantage of this is, that it kills not only the lice but the nits, or eggs, as well; and if thoroughly done, it vanquishes the foe. The proportions of the above, as will be seen, are different from those I have usually given. This is Dr. Riley's method, and makes easily a more stable mixture. This liquid is one of our most valuable insecticides.

Agricultural College, Mich. A. J. Cook.

WINTER CASES.

WHAT ARE THE ESSENTIALS TO MAKE THEM A SUCCESS?

Now that the light thin-walled winter cases are about to come into general use for spring protection and for wintering, many would perhaps like to know how my bees have wintered in them. I have about 50 colonies in winter cases, a good part of which have been in use for five years. I have never lost a colony in them. The past winter was very wet and damp; and early in January I discovered that the excelsior packing was getting too damp for safe wintering. So, the first day the sun shone clear, I took out the packing and dried it, and some that was very damp or wet was replaced by new and dry packing. In February and March, one day in each month was selected, and the hive covers and packing removed again, and dried out by the sun and wind. For the past five weeks it has been excessively damp and cool, so that, up to the present time, April 8, no pollen has been gathered, and the bees have been out but little. There are now many young bees, and every colony is strong, and in the best possible condition. Many of the colonies have not lost a bee, so far as can be seen, seeming to hibernate most of the winter.

My belief is, that perfect quiet and perfect wintering can not be had in outdoor wintering unless the hives are warmly packed in winter cases, and the packing kept dry. I think, also, that, to bring the combs through the winter, free from mold and dampness, there must be some upward ventilation, but no free upward ventilation, as where the air can pass freely over the packing. My plan has been to lift the back end of the thin inside cover used on my hives about Nov. 1, and insert a thin wedge; then pack freely about and over the brood-chamber, and shut the cover of the winter case down as tight as it will go. This prevents any loss of heat from the cluster of bees, brings the combs through the winter bright and clean, and the bees in the most vigorous and healthy condition.

The only objection that can be urged against the plan is, that the packing may become damp and finally wet, and is apt to result in the loss of the bees if not attended to. On the other hand, if free currents of air are allowed over and about the packing, there being a little upward ventilation so the combs will not become moldy, the packing will do little good in the way of protection; and in a long cold winter many colonies will be lost from dysentery, etc.

If we leave the upper parts of the hive sealed up tight as the bees will naturally do, we shall get moldy combs in the lower part of the hive, if we pack the bees with absorbents, except there be extensive and free bottom ventilation; which, however, does not result in as good wintering, or in as good condition of the combs, as the plan advised. For myself I prefer to deal with the damp packing rather than with sickly bees and moldy combs. Moreover, I have found it less labor and trouble than any other mode of wintering I have tried.

As to winter cases and dead-air spaces about the brood-chamber, I fully agree with Mr. J. A. Green, Mr. Doolittle, and others. It is better protection than none, but vastly inferior to good packing rightly managed. G. L. Tinker.

New Philadelphia, O., Apr. 8.

PROTECTION FOR BEES.

WINTER CASES AND PACKING DURING THE YEAR; MINERAL WOOL AND ITS NON-CONDUCTIVITY OF HEAT.

I have for some time been convinced of the inutility of chaff, cut straw, cork shavings, etc., used as a protection in wintering bees. In the winter of 1889, chaff was used to pack a number of colonies, and spring dwindling and moldy combs resulted in several instances, while a few hives packed in wheat bran came through in fine condition. The bran packing, presenting a bait for vermin, was abandoned. This summer my attention was attracted to a new material, and I resolved to test it. I now have my colonies all packed snugly, and ranged on the four sides of my large strawberry-bed. The case is made of good ⅞ pine lumber; the sides of flooring; the bottom and ends each of one piece; the top, two boards cleated on the ends, and the crack coated with white lead and covered with tin four inches wide. The case is intended to accommodate the Dovetailed hive. It gives a space of 1½ inches on the sides and 2 on the ends, while the height will allow of the placing of a super to hold the chaff cushion. Three coats of white-lead paint renders the case impervious to water—first, however, puttying all cracks and holes. The top is held in position (a necessary precaution against our mountain storms) by two Van Deusen clamps, one on each side of the cover, which projects ½ inch over the sides of the case. That the clamps may lie closely to the case, a semicircular hole, embracing two-thirds of the thickness of the cover, is bored for their reception in the sides of the cover, and the hole enlarged on the lower aspect for the better play of the clamp in locking and unlocking. The bottom-board is not nailed, but fits *within* the case. The case may be removed, and the packing gathered up from around the hive.

The entrance to the hive is left wholly open; but the opening in the case is ½x3 inches, usually. This may be enlarged or wholly closed by a convenient slide. The edges of the case immediately under the cover have strips of woolen cloth tacked down, so that, when the cover is placed and clamped down, it is water-tight. Ventilation, if thought necessary, may be provided for as in the Simplicity hive, by holes in the end-boards under the cleated cover, which projects sufficiently to afford protection in blustering, rainy, or snowy weather. The hive is now placed inside and packed with *mineral wool*, or silicate cotton, as it is called in England. The wool should be picked apart and packed loosely but firmly, and care taken that the fibers be not broken by the force applied.

I wish to call attention to this mineral wool as the *ideal* material for wintering bees, not only in cases on their summer stands, but in suitable buildings with double walls, ceiling and floor, with a three or four inch space packed with the wool. Bee-cellars would then be a thing of the past.

I give the following experiment, which first attracted my attention to this material, to show that my claims for mineral wool are not founded on theory alone:

MEMORANDUM OF A TEST OF INSULATORS MADE AT THE PACKING-HOUSE OF ARMOUR PACKING CO., KANSAS CITY, MO., FROM JULY 15TH TO JULY 19TH, 1886.

Three boxes were made, with inside measurements of 18 inches square and 14 inches high.

Box No. 1 was insulated with lampblack.

Box No. 2 was insulated with four dead-air spaces, paper lined.

Box No. 3 was insulated with mineral wool, 2½ inches thick.

At 10 o'clock a. m., July 15th, there was placed in each box 75 lbs. of ice, in one piece. At the end of 48 hours, and again at the end of 96 hours, the ice was weighed, with the following results:

	After 48 hours.	After 96 hours.
Box No. 1, lampblack,	46½ lbs.	22½ lbs.
Box No. 2, dead-air spaces,	47 lbs.	23¾ lbs.
Box No. 3, mineral wool,	52 lbs.	34½ lbs.

The above test was made in the presence of

G. W. **Tourtellet**, Sup't., and
John Thomas, Builder.

Mineral wool is a vitreous substance, converted to a fibrous condition while in a melted state. It is made from furnace slag, scoria, and certain rocks. It presents the appearance of a mass of very fine fibers interlacing each other in every direction, thus forming innumerable minute air-cells. We thus get, not *one* dead-air space, as in double-walled hives, but millions of them! Mineral wood partakes of the nature of glass without its brittleness, the fibers being soft, pliant, and elastic. It appears in many colors, principally white, but often gray or yellow, and occasionally quite dark; but the quality of the wool is not at all dependent upon or affected by its color.

One of the most important qualities of mineral wood is its unequaled power to resist the transmission of heat and cold. This can readily be accounted for by the fact that it holds in confinement a greater quantity of air than any other material. Air is so subtile and rapid in movement, when unconfined, and is so slow to carry heat, except by its own motion, that it is at once the best distributor of heat and also the greatest barrier to its transmission, according as it has or has not freedom to circulate.

The substance under discussion affords an efficient protection against the insidious attacks of Jack Frost, as well as a perfect insulation of sound. It is used in all the Pullman cars for the last-named purpose. Owing to its composition (an analysis showing it to be a silicate of magnesia, lime, potash, etc.), it gives no protection to animal life, doing away with the mice, insects, moths, and their attendant evils and disease germs. There is nothing organic in the material to decay or become musty, or to furnish comfort and food for vermin.

As has been said, mineral wool resists the transmission of heat more completely than any other material that can be used for our purposes. It thus affords warm and dry quarters during the winter months, and cool hives in the torrid time of summer.

I append two tables, the first by Mr. Coleman, of the Philadelphia Society, of Glasgow, and the second from Roper's "Handy-Book." Both are abridged.

I hardly need say, that I have no interest in writing this, further than to offer something that is at once cheap and efficient to the bee-keeping fraternity for the uses and purposes mentioned. The ordinary mineral wool weighs 14 lbs. per cubic foot; 1⅙ lbs. per square foot, 1 inch thick. It sells at $1.25 per 100 lbs. Select wool weighs 10 lbs. per cubic foot; 10/12 lbs. per square foot, one inch thick, and sells at $2 per 100 lbs. Of the latter grade, 140 lbs. packed 18 cases of the dimensions given in this paper. There is an extra grade of the wool, which weighs 6 lbs. per cubic foot; ½ lb. per square foot, one inch thick, the price of which is $3.50 per 100 lbs. The foregoing prices are for small lots. The packing could be employed more economically by packing the brood-chamber only. The packing in my cases is at the top of the added super. Samples of the wool may be obtained by writing to the Western Mineral Wool Co., at Cleveland, Chicago, or St. Louis.

HEAT-CONDUCTING POWER OF MATERIALS:

Mineral wool,	100
Hair felt,	117
Cotton wool,	122
Sheep's wool,	136
Sawdust,	163
Wood and air-space,	280

NON-CONDUCTING PROPERTIES OF DIFFERENT MATERIALS OF EVEN THICKNESS:

Black slate,	100
Soft chalk,	48 to 56
Sawdust,	17 to 20
Fine asbestos in thread,	13 to 15
Mineral wool, extra,	8 to 13
Raw silk,	8 to 13
Ice,	0

HOW TO ESTIMATE.

After a rough calculation of the number of cubic feet of space to be filled, find the weight of *ordinary* required, by multiplying by 14, and the weight of *extra* and *selected* wool by multiplying by 6 or 10, according to the grade to be used.

J. B. Enos, M. D.

Connellsville, Pa., April 6, 1891.

SIZES OF FRAMES, AGAIN.

SHOULD THERE BE TWO STANDARD FRAMES?

I read with interest the article on sizes and styles of frames, by W. T. Stewart, and your comments on the same. I believe there should be two standard frames in use—one for the production of comb, and one for the production of extracted honey. Why? Because, for the best result, we need, for the production of comb honey, a small frame; for extracted honey, a large one is better. One frame will not answer satisfactorily for both purposes. I use the crosswise L. frame, and believe it to be as good as any in use for the production of comb honey. I have tried different sizes of frames, and they suit me the best. They are lighter and better to handle than the lengthwise frame. The queen fills the comb better with brood. You can shake bees off from the comb quicker and better, with less danger of racking the frame or breaking the comb—especially the latter—in very warm weather. The hive entrance is at the side, where I believe it should be. You say the trouble with the crosswise frame is, it does not hold comb enough. If working for extracted honey you are right. Neither does the lengthwise frame. If working for comb honey it holds plenty, and the lengthwise holds too much comb. It is true, with the crosswise we have more frames to handle; but, being lighter, we can handle them more rapidly. The lengthwise frame is heavy and awkward to handle, unsuitable for the producer of comb honey. Perhaps two-thirds of those using it never used any other; and perhaps most of them, if they once used the crosswise frame, would use it in preference to the lengthwise. Why is it that the majority of the large honey-producers do not use the lengthwise frame? Because it is not suitable for either the comb or extracted honey producer. Here is Mr. A. He produces comb honey. He uses the hive and frame best adapted for the production of comb honey. He makes them himself, but would rather buy them ready made, but can not because there is but one standard hive and frame in use. They are not suited to his wants, because they are not any better for comb than extracted honey, and are not adapted to the production of either. And may be it is the same with Mr. C, who produces extracted honey. Perhaps the frame used by the Dadants is as good as any for the extracted-honey producer. N. T. Holmes.

Fowlerville, Mich., Mar. 24.

[Friend H., the crosswise L. frame has, at several times, had a run; but as the majority of bee-keepers seem to let it go sooner or later, and come back to the old long frame, I can not think it offers any great advantage.]

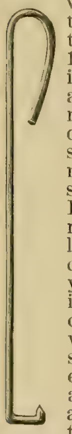
T SUPERS VS. WIDE FRAMES.

DR. MILLER TELLS US HOW HE TAKES OUT THE SECTIONS ONE BY ONE AS FAST AS THEY ARE CAPPED.

On page 232 W. S. Douglass has a word about them, and I suppose there are a good many who find the wide frames, in their hands, better than the T super. Much depends on the way a thing is used.

For the benefit of Mr. Douglass and others I will now describe the plan I have used for some time, to take single sections out of a T super, without taking the super off the hive. I thought of doing so some time ago, but had about given it up, with the thought that, if followers and wedges in T supers came into general use, there would be no special plan needed. Still, it may be useful to a good many.

You may remember, friend Root, a tool that I took to the convention at Madison a year ago, and then forgot to show. Well, I send it herewith. I have pulled sections by the thousand with the identical one I send you. I'll tell you how to make one. Go to your tinner and tell him to cut a piece of No. 11 wire about a foot long. Straighten it. Bend the wire at right angles about an inch from one end. Make another right-angled bend, a quarter of an inch or less, from the same end. I'm not sure which of these bends should be made first. The end of your wire is now shaped like the bottom part of a capital L (see cut). But the end is blunt, and must be filed down to a cutting edge like a chisel. Your chisel edge will, of course, be the size of the thickness of your wire—a little more than ⅛ of an inch. Now for a handle. Make a curved bend at the other end of the wire, about three inches from the end, so that it shall form a semi-circle at the end, an inch in diameter. This leaves about two inches of the end straight, and I don't know whether it is better to have this two inches parallel with the main wire or to have the end come within ⅝ of the main wire. The bends at both ends are all made in the same plane, so that the hook will lie flat upon a table without any part projecting upward.



Another tool is needed. Take a common steel table-knife, and make it square across the end by cutting off the rounding part. Make this square end about as sharp as the cutting edge of a table-knife usually is.

Now we'll go to the hive, and I'll show you how to pull out any desired section. Take off the cover and give the bees just enough smoke to drive them out of the way a little. There are separators in the super, and on top little separators ¼x⅛ inch, 12 inches long, to keep the ends of the sections apart. Now run the knife across at each end of the section, to loosen the little separator from it. I must confess that I usually use a third tool for this, the big blade of a pocket-knife. Now run in the case-knife at each side to the bottom of the section, so as to loosen the section from the separators. Put your hook down between the section and separator, and give it a quarter turn so as to let the hook run under the section. I have a bit of string tied on the wire, so as to show me when it is pushed just deep enough to turn the hook. If the hook is not in deep enough when turned, of course it will dig into the honey. A ring of bright paint might be better than the string, for it would never slip out of its place. I think you will understand the rest. Like a bureau drawer, it may pull out straight; but very likely it will need starting at each end. When you get the section out, just grasp across it with the thumb and fingers of one hand and give it a few rapid whirls, and every bee will be thrown off.

Now, that looks like a good deal of fuss to read it, but it doesn't take as much time as you probably imagine. I think I can take out a single section, or several sections, from a T super in less time—a great deal less time—than out of a wide frame. You see, there is no frame to take out—nothing but just the section. In fact, if you loosen the super you will find it much harder to pull the section. Sometimes I have taken out the sections without the hook, merely loosening them with the knife and then pulling them with the fingers; but every now and then the bottom-bar of a section would pull off, and I was glad to go back to the hook.

The objection made by the editor, in the footnote, is a valid one, that sections left on the hive for a long time will have a soiled, travel-stained, yellow appearance. But they should never be left on after the harvest is over; and in a poor season, when nothing is put in them, I think they come off about as bright as if they had been in a wide frame. You know, the bees don't go into the glue-business (at least they don't here) until the white-honey season is over. Indeed, if you take into consideration the whole surface of a section, or, in other words, its total appearance as viewed by a purchaser, the section out of a T super is the cleaner. In the wide frame, a heavy streak of propolis is crowded in just as far as the bees can push it all around the section. This they have no temptation to do in the T super, for there is no crack.

You say, friend Root, that an enameled cloth can be laid flat on the section tops in wide frames and section holders. I don't see what good it would do in wide frames, for it would cover only the top-bars, and I'm sure it could be put on a T super just as well as on section-holders. But don't you know that it would make matters a good deal worse in either case? If you want to see the tops of sections thoroughly daubed with glue, just lay an enameled cloth flat on the sections toward the end of the harvest. The bees are busy trying to fill up cracks: and as fast as they push in propolis under the cloth, the cloth is raised up, making more space to fill; and if glue is to be found at all, you will find it there in plenty. C. C. Miller.

Marengo, Ill., March 20.

[Very good, doctor. I am glad you have got around to describe the implement. It interested me, because I am sure the handsomest honey can be obtained by selecting here and there the sections about as soon as they are wholly capped.]

THE NEW WATER CURE, HOME PAPERS, GLEANINGS, ETC.

SOMETHING SENSIBLE FROM S. I. FREEBORN.

I have read carefully the article on page 183, and, I hope, with profit. It might be urged by some, that the article in question is foreign to the bee-interest, and therefore should have no place in a periodical devoted specially to the interest of bee-keepers. The same objection might be and has been urged against the Home Papers; but A. I. Root has said, by way of apology, that he gives us our money's worth in bee-literature, and throws the rest in, all of which I am willing to admit, and he has my consent without the asking (especially as long as he throws it in), to make GLEANINGS as valuable and necessary to us as possible. He has been most fortunate (or I have) in that he has chosen topics, aside from the bee-interests, in which I am vitally interested. The Home Papers have proved instructive, and a spur to action in the right direction. Ministers have expressed to me their appreciation of them, and said that the reading of the Home Papers had better fitted them to care for those over whose spiritual interests they were called to watch. Give us the Home Papers, Bro. Root. What can be of more importance than our eternal welfare?

Referring to the horticultural department in GLEANINGS, this also hits me right; for in this line I attempt to get what bread and butter bee-keeping fails to supply.

In reference to the new water cure (for this I most designed to write, though it is not new by any means), it was practiced to some extent 30 years ago in this neighborhood, and then as now was considered of benefit, but had almost become a thing of the past till revived by Wilford Hall & Co., who claim to have distributed 300,000 copies of their pamphlet, and received 14,000 testimonials commendatory of its efficacy, within the last 18 months. This might at first sight look like a gigantic swindling scheme. Allowing that they gave away a third to ministers and those who were unable to purchase, and there would be left 200,000 paying customers at $4.00 each. This would amount to the enormous sum of $800.000, which a suffering and gullible public have paid for that which was already free to all who cared to use. We must not be too hard on "Hall & Co.," for the probabilities are that they have done the public a kindness; for what costs nothing we are apt to consider lightly.

That the so-called new remedy will accomplish all or *half* that is claimed for it, I very much doubt; but that it will prove palliative, and a benefit to large numbers, I fully believe. The world is sick, A. I. Root says; the $800,000 paid Hall say so; the millions squandered every year on drugs and patent medicines say so; the army of health-seeking pilgrims that yearly are seeking what they have lost, in Southern California, Florida, or some other so-called health-resort, bear evidence that we are truly sick. We all like sheep have gone astray; and the question may well be asked, as it was of old, "Who has sinned, this man or his parents?" We say both, calling "this man" this generation, and the past his "parents." With all the accumulation of knowledge and boasted advancement of the age, we are behind the cattle of the fields in the matter of health. Who has heard of a short-horn steer having dyspepsia, or a Jersey cow with sick-headache?

Don't you think, readers, that, if they were obliged to eat and do as their masters, they would have both, and the thousands of other evils that humanity is subject to in consequence of their transgressions? The steer eats grass, hay, and grains, as designed by nature to do; his wants are few and simple, and easily supplied, and, as a rule, he remains healthy. But his master (man) can not supply his wants so easily, especially his *imaginary* wants. He must bring under tribute all living things, of sea, earth, and air. At present, in civilized countries (especially in the U. S.), such a glutton and physical sinner has he become that the old list of diseases was not long enough, and more names had to be added to express and explain the new agonies and troubles.

To illustrate how far we have left the path of purity and nature, let us take the horse for an illustration. Suppose, Bro. Root, that you had a valuable young horse with indications of becoming a second Axtel, and that you had engaged an intelligent horseman, a regular expert, to take charge of him. What would the groom say, if, at the time the colt was to have his first feed at his hands, you should say, "Hold on! I am very particular about the rations fed my horse. Any thing that I eat is none too good for him. Here is a tin of hot rolls; some slices of fat bacon with mustard and pepper; pickels; a mince pie, and some strong coffee?" The groom's eyes no doubt would be distended to their fullest capacity, and he would remonstrate by saying, "My dear sir, with all due deference to your judgment and manner of feeding, if you expect me to take charge of and be responsible for the appearance and actions of the colt I hope you will allow me to have my way in feeding, for I can assure you he needs none of the things you mention, to make him a healthy colt; in fact, he won't touch the bacon, mustard, and coffee." You could tell him that children won't eat such things till educated to it by their elders; but by judicious mixing and coaxing, in time they can be brought to it, and so can the colt. The groom remains obstinate, and declines to serve you if you insist on this absurd kind of ration, and says a ration of pure water, and good hay and oats, will make a better horse of him; he will live longer, look better, and, in fact, be better on his rations of oats and hay than he would on all the mince pie and fat bacon in America. What intelligent horseman would doubt his word? In place of a colt we will substitute a boy in his teens, and, by leaving out the hay and preparing the oats right, the boy would live longer, and be of more use to himself and the world, than he would on the pie condiments and bacon diet.

Much has been written on tobacco and the liquor-traffic. What is wickedly squandered on these evils would feed the needy of Europe and America. A man may be free from the use of liquor and tobacco, and still not be as temperate as he should be. Have we any better right to kill ourselves by eating hot rolls and mince pie than we have by drinking liquor? If we are temperate in some respects, does it give us the right to gluttony in others?

Now, Bro. Root, as you have done a good thing for us in the past in helping us produce many things for our comfort and pleasure here, as well as directing us to find the way to a better country beyond, I earnestly hope that you will direct your efforts, and teach us how to live so we need not be sick all or part of the time, but that good health may be the rule and not the exception. To that end we suggest that you invite correspondence on this subject, that the readers of GLEANINGS, especially the young, may get ideas and information that will enable them to escape and steer clear of the wrong habits that have wrecked their elders.

Ithaca, Wis., March 26. S. I. FREEBORN.

HIVE-WEIGHTS.

WHY THEY ARE AN ADVANTAGE.

During a large part of the year I prefer to keep on each hive a stone or brick, weighing 12 or 15 lbs. In the winter this is almost a necessity, to keep the covers from blowing away. We get winds here sometimes that send such things sailing unless well weighted down. Even the covers of your chaff hives are frequently blown off. It seems to me, too, that I have read about the boys at the Home of the Honey-bees having been obliged at times to race out into the rain to replace covers. In inclement weather the absence of the cover for a few hours, say until the interior of the hive has been saturated with rain, and then frozen, is apt to result in the ruin of the colony. In the winter, when the apiary is not constantly under my eye, I can not afford to run this risk.

Except during the warmest summer weather, a bee-hive is better for being closely sealed at the top. Especially is this the case in the spring, when we should be very careful that there is no chance for the warm air to escape through cracks around the top of the hive. Whenever the cover to the brood-chamber is removed after cool weather has set in in the fall, a crack of greater or less extent is made, which the bees are unable to close until the warm weather of the next spring. When a weight is kept on the flat board cover, it is held down closely to the hive; lumps of propolis are flattened out as they soften, and the crevice closed, or reduced to the smallest dimensions, making it easy for the bees to close it tight. After warm weather has arrived this matter becomes unimportant, so that, unless a cover is inclined to warp or twist, weights are unnecessary; and during the working season they are laid aside, from hives that are to be frequently opened.

In practical honey production, hives need to be opened so seldom that the labor of removing and replacing these weights is but small compared with their advantages. If desired they can be used to keep a record of the condition of the hive. A brick, as used by S. W. Morrison, answers this purpose excellently, but is hardly heavy enough for a weight. There is a large paving-brick made here that is just the thing for both purposes, and I expect to use them hereafter.

Besides the record that may be kept by placing them in different positions on the hive, the brick may be painted on two or three of its sides, thus more than doubling the possible combinations. Where any record more extended or permanent is desired, I prefer a small piece of cardboard held to the hive by a single small tack, and written upon with a leadpencil.

DEAD-AIR SPACES, AGAIN.

I know that some claim as an advantage of air-spaces as opposed to packing, that they are more easily warmed up, thus allowing the bees to fly sooner and oftener. It is true, that they will let the heat of the sun in more readily, just as they will let the heat of the bees out more readily—in both cases a disadvantage. We do not want the bees to fly every time the sun shines for a few minutes. As a rule, we should rather discourage flying in the winter and early spring. Just enough flights to keep the bees in good health is much better than to have them tempted out on every appearance of sunshine, to wear themselves out or be chilled and lost. If the bees have been confined long, and you want them to make the most of warm weather that you are afraid might not warm up packed hives, remove the packing from the top, and let the sun shine directly on the hive. Usually, though, this is unnecessary trouble, as bees in packed hives will fly whenever it is perfectly safe for them to do so. J. A. Green.

Dayton, Ill., Apr. 8.

[Yes, we do have winds, but I do not remember of more than two or three in five years that have been sufficient in force to raise more than fifty covers, and these were replaced very soon after. The covers of our Dovetailed hives, where we use no enamel cloth, need neither stone nor clamps to hold them down. The bees will gum them so they will stick, and in opening them we are obliged to use the blade of a knife or screwdriver to loosen them. The covers that have been blown off for us have been those of chaff and Simplicity hives. If I found it necessary to have the cover held down by something, I believe I should prefer the light malleable Van Deusen clamp, made by Dr. Tinker. These exert considerable pressure, and save the labor of lifting when required to remove the cover. But, hold a minute! No Van Deusen clamps would hold down your corrugated iron covers, would they? And as Illinois is a prairie State, and the winds come with volume and force, I shall have to give up to you. Very likely I should use stones if I were in your location. There is no disputing the fact, that a flat flagging-stone or a paving-brick, aside from its office in holding the cover down, affords an excellent arrangement for keeping a record; and the idea of painting one or both sides different colors is good. But would these paving-brick be heavy enough to hold the cover down—that is, would five or six pounds be sufficient? If so, I am with you.

In regard to air-spaces, I acknowledge that, theoretically, they ought not to be as good as packed spaces; but some facts are coming to light to show there is but very little practical difference in results. Still, one swallow does not make a summer. All I desire is, that the matter be agitated enough so that we shall know on which side is truth and safety, as well as convenience and minimum cost.] E. R. R.

[Permit me to say something right here, friend G. The Simplicity hive was planned with the idea that the bees should never have a chance to propolize the inside of the cover. They were to be kept entirely away from the cover joints by quilts or enamel sheets. You see we use our hives for queen-rearing. They are opened and the frames handled incessantly; therefore we want a cover that never sticks, and frames that can be picked up with one hand, without a bit of jar or sticking. Now, the boys have rather "sat down" on the Simplicity hive, and a good many have discarded the metal-cornered frames; yet there may be quite a few, especially among those who raise queens for sale, who want the old appliances invented for this special purpose by your friend A. I. R. See the following:]

IN FAVOR OF THE METAL-CORNERED THICK-TOP FRAME.

I have been following the brood-frame question with great interest, but have not dared to say any thing. I admit that I have never used the Hoffman or any closed or fixed frame, and some may say I am not able to advise for that reason. Perhaps not. But, be as it may, I have 2500 heavy-top metal-top cornered frames in use, and am making 3000 more of the same kind for this season's use. All are to be wired with full sheets of foundation. I winter in packed hives, and do not expect to haul my bees any. I want a frame made so that, when I take hold of one to move it, even with one hand, it will start every time without any prying or jarring of the hive. Any wood-cornered frame will not do this here, as they are fastened with propolis to stay: so I am one more on the side of metal corners and swinging (?) frames.

H. P. LANGDON.

East Constable. N. Y., Mar. 23.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BLISTER-BEETLES ON BEES.

Friend Root:—The crumbled scrap of paper inclosed in this letter contains a bee which is nearly covered with lice, which are the most disagreeable-looking insects that we ever saw. They are about an eighth of an inch long, and similar in color to the wire-worm.

Viola, Idaho, April 7. E. P. PALMER.

[We sent the above to Prof. Cook, who replies:]

As I state in the last edition of the Bee-keeper's Guide, where I illustrate blister-beetle parasites of bees, I have received such bee-enemies from California and New York; now they come from Viola, Idaho. These are the larvæ of our meloe, or blister beetles. The larvæ of the blister-beetles are strangely interesting in that they pass through several forms. The first form is long, flat, with a broad head and thorax, long legs, and two long stylets projecting from the end of the body. This is the stage in which they fasten to and feed on bees. I find that there were fourteen of these little pests attached to the bee sent by Mr. Palmer. I hope I found them all. There is a good figure of these larval parasites in my Manual. I should like Mr. Palmer to send me more infested bees, should he find any. I shall take pleasure in describing and naming any insects sent to me, and especially of insects working on bees.

Ag'l College, Mich., Apr. 18. A. J. COOK.

BEES AT WORK ON PEAVINES.

Last August I had a pea-patch about half a mile from my bees—about an acre. The bees made a continuous buzz, at work on them from early morn till late in the evening, assisted by the wasps and yellow-jackets. At the same time, I had a lot of Japanese buckwheat (very fine) of about 1½ acres close to the bees, and there were always twice as many of my bees to the rod on an acre on the peas as on the buckwheat. I have noticed for years that bees do all their work on buckwheat in the morning. The bees, etc., were at work on the fruit-stem of the peavine about the time the peas were large enough to be gathered to eat; and in many cases every pea had been gathered for a good many days. They were confined to the end of the fruit-stalk, just where the peas were or had been pulled from. There were no lice nor any thing of the kind that could be seen with the naked eye. In August the peas and buckwheat were about all the bee forage there was.

Design, Va. R. JEFF. JONES.

[Friend J., this only gives us another illustration of the fact that almost any plant may at times yield honey; and, furthermore, that, by some freak of nature, the plants may at times secrete nectar when they are not in bloom. I suppose the sweet substance you mention oozed from the stem or broken vines after the peas were picked. We have had some reports to the effect that wheat and other grains, when cut for fodder, at a particular time or stage of growth, and during some seasons, secrete a large quantity of a sweet substance in the stubble. In such cases, probably the starchy matter from the young growing plant is converted into sugar.]

CAN BEES PUNCTURE GRAPES OR HULL WHEAT?

While perusing your valuable journal, I have been brought to believe that bees can not puncture fruit: but, under certain conditions of the weather, grapes will crack, and the bees will then be eager to save the wasting sweet. In a late issue I learn that they can hull and powder a bushel of wheat in their leisure moments. Further, friend Root, when high authority admits it may be true, or it is possible for them to do so, I must confess I do not feel safe in telling my neighbors that bees do not bite.

Belle Vernon, Pa., March 20. A. B. BAIRD.

[Friend B., I confess that I thought it a little strange that bees could eat wheat; but since then friend France has suggested that it was mice and not the bees.]

WHEN IT DOES AND WHEN IT DOES NOT PAY TO USE FULL SHEETS OF FOUNDATION IN THE SECTIONS.

In a rush of honey I find the larger pieces I use in the sections the better, as the bees can not then build comb nearly as fast as they gather honey, build their combs thin as possible and seal them as thin as wafers; but when honey comes in quite slowly they have a superabundance of wax, leave the foundation undrawn, in the shape of the renowned objectionable "fish-bone," build their combs without stint, and seal them much heavier. Where the season is very short, but the flow, while it lasts, heavy, fill the boxes with full sheets. Where the flow is moderate and the season long, a narrow starter will be found to be of fully as much value as the full sheets, and without the fish-bone. W. W. CASE.

Baptistown, N. J., Apr. 1.

SUGAR A COMPARATIVELY RECENT INVENTION.

On p. 222, foot-notes to E. T. Flanagan's article, you say, "The Scriptures lay very much more stress upon milk and honey than on any other kind of sweet." Sugar, as an article of commerce, has been known but four or five hundred years, if I am rightly informed. Honey is supposed to be the most ancient sweet known to the human race. J. L. HUBBARD.

Walpole, N. H., April 6.

[No doubt you are right, friend H.; but just think what progress we have made in these times of civilization (?)—sugar unknown 500 years ago, and now it is only 5 cts. a pound for the best granulated. By the way, friend H., are we to understand that the limited quantity of honey produced in olden times was really all the sweetening they had? And, by the way, is it not possible that, if we were reduced to something like the same conditions, we might live to a good old age, as they did in early Bible times? Who knows?]

THE FALLACY OF CHILLED BROOD DEVELOPING INTO FOUL BROOD.

One of the results of non-protection in the spring is chilled and dead brood, liable to end in foul brood. So says Allen Pringle, and so say a great many other writers on bees. Now, is it a fact that foul brood can be started in that way? I for one don't believe it. I have been a bee-keeper all my life, and am now 67. I always wintered outdoors, and have never seen a case of foul brood yet. I am quite sure that I have had hundreds of cases of chilled and dead brood in all of these years. Sometimes a colony gets brood well started in the spring, and then deserts the hive or swarms out, leaving their brood to chill and die, and then the first warm day that comes, the other bees in the yard go in and clean out the honey, and suck those chilled and dead larvæ as dry as chips.

Another colony dies early in spring from starvation, leaving brood to chill and die. The other bees overhaul the combs in search of plunder, and no foul brood results. Now, there is a long list of cases in all those years of bee-keeping and outdoor wintering where there has been chilled brood, and never a case of foul brood has there been. How is it that I have escaped? Can any one prove that foul brood ever originated in any such way? I doubt it.

Platteville, Wis., Mar. 29. E. FRANCE.

SUCCESS WITH THE DOOLITTLE ARTIFICIAL CELLS; A GOOD TESTIMONIAL FOR DOOLITTLE'S BOOK.

Mr. Root:—In GLEANINGS for March 1 I notice, on page 162, you wish to know from those who have succeeded with Doolittle's artificial wax cells. I first tried the plan given in Chap. 6, that of making them queenless three days, then taking their brood away and giving them twelve artificial wax cells with royal jelly and small larva. In four days, returning to this hive, to my surprise, I found every cell accepted and nearly ready to seal. I next tried the plan over a queen-excluding honey-board, as soon as honey was coming in from white clover. The colony being strong, I took two frames from the lower and placed them in the upper story. I took those with small larva next day, placing a frame with artificial wax cells in between, and a division-board on each side. In this way I have had 80 per cent of cells accepted. If we crowd the colony too much we shall not get as many completed. In this locality, about Aug. 1, bees are inactive, and then we must again feed to get them finished. Doolittle's book is worth to me many times its cost. I have not failed with any of the plans tried, given in his book. PETER BROWER.

New Paris, Ind., Mar. 8.

HOW TO SAVE BASSWOOD SEEDS.

The following comes from one of our large nurserymen, who deals largely in basswood-trees raised from seedlings. It comes in answer to an inquiry of ours:

> Basswood seed should be picked from the tree just as the leaves are falling, or picked from the ground as it falls, and should be dried just enough to take the moisture from the outside of the shell, but not to dry the germ of the seed any; then pack them in sand that is a little moist, not wet, and put in the cellar. Or it would be better if it were put in plenty of sand, and wet, and put outside to allow it to freeze, and then plant in the spring.

Evergreen, Wis., March 12. GEO. PINNEY.

THE MOST IMPORTANT THING IN THE WORLD.

Friend Root:—I trust you will excuse me for not answering your question sooner. My mind has been so filled with a subject of so great importance as to nearly drive all else out. There has been a grand revival carried on in and around Fremont, and about 350 souls have been redeemed, myself among the number.

ROBERT E. ASHCRAFT.

Fremont, Mich., March 18.

[May the Lord be praised, friend A., especially for the latter sentence. We can put up with almost any sort of omission and neglect when it is explained by such a state of affairs as you mention.]

NO EXCLUDERS NEEDED FOR COMB HONEY.

I did not use any zinc honey-boards, nor honey-boards of any description, the past season, and there was not one section in 500 that contained brood or even pollen, so all contrivances of that kind are worthless for me.

Deer Park, Mo., Mar. 10. E. C. L. LARCH.

[Your experience is in just the line I have been trying to teach. With the 8-frame L. hive, queen-excluding honey-boards are entirely unnecessary in the production of comb honey. If unnecessary, they are a useless expense and labor. We make immense quantities of perforated metal, but I should be sorry to see any one pay out a lot of money when comb honey is the object.] E. R.

PROSPECTS GOOD FOR CALIFORNIA.

Bees wintered very well in the mountains. They gathered considerable honey in December, and some in January. Sage is beginning to bloom. I think extracting will commence about the 20th or 25th of April. There has been plenty of rain so far to give fine prospects; and with one or two more spring rains we can expect a good crop. J. G. GILSTRAP.

Last, Fresno Co., Cal., March 29.

RUBBER GLOVES WORSE THAN NOTHING FOR BEES.

I bought a pair some seven years ago of A. I. Root, and I did not have to use them very long to learn to abhor the very name and sight of them. They sweat the hand, are clumsy, and have to be fairly torn off, the hand looking as though it had been parboiled. My bees stung right through them, so there was but little protection from them against injury from bees, and a good deal of discomfort from their use. I now use a buck glove with a long cloth wrist, made to come up over my coat-sleeve, and held by elastic bands. R. E. TIMONEY.

Smyrna, Maine, March 25.

SILVERHULL VS. JAPANESE BUCKWHEAT.

I see one of the friends advertising silverhull buckwheat as being superior to Japanese. It will not do so well in this part of West Virginia. In 1889 I got half a bushel from you, yielding 39 bushels on one acre and 15 rods. Last year I sowed 1¾ bushels on 3 acres and 74 rods, yielding 139 bushels, machine measure. Silverhull never yielded over 15 bushels per acre for me.

J. L. MCKENZIE.

Howesville, W. Va., Mar. 20.

THE LIGHT WINTERING CASE.

The two swarms done up in paper and oil cloth (see p. 280) are just booming. I believe I have just found out how to winter bees successfully. I vote for the light wintering case.

RAMBLER.

BEES ALL DEAD.

The bees in this section of country are nearly all dead, and people are waiting to see whether they have any bees left before buying hives.

DUDLEY WALKER.

North Chatham, N. Y., April 3.

Bees here have wintered splendidly so far; glad to see that GLEANINGS is always improving. ANDREW BUCHAN.

Loanhead, Mid-Lothian, Scotland, Feb. 17.

I enjoy Rambler's letters very much, and my wife takes on so about him I am getting uneasy. She is thinking of going to California.

LITTLE EASY.

Fayette Corner, Tenn., April 6.

MORE THAN HALF THE BEES DEAD.

More than half of all the bees in this part of the country have died through the winter, but they were all in box hives. J. A. Shone.

Salem, Miss., March 30, 1891.

BEES IN THE CELLAR WINTERED BEST.

Our bees wintered much better in the cellar than those out of doors; but both are very short of stores. I shall have to feed more largely this spring than we have ever done; but at this date we find but two dead; but several are very weak, and will probably die if not helped or united with some other colonies.

Mrs. L. C. Axtell.

Roseville, Ill., April 13.

THE WINTERING OF E. FRANCE'S BEES, AND PROSPECTS FOR THE SEASON.

We have just finished looking over the bees, and find them in good condition. White clover is looking well. We have spoken for 50,000 lbs. of honey if the season is good. But I am afraid that we have too many bees for our pasture. First pollen April 12. We have drones hatched in several hives already, only eight days since the first pollen. Big hives do it.

Platteville, Wis., April 18. E. France.

THE OUTLOOK IN CALIFORNIA.

The season here is very late this year. It has been cold and backward. But the "filleree" is out in all its glory, and the bees are booming on it. The black sage is shooting up its long slender stems that bear the buds and blossoms, and will soon throw out its white-purple banner to the breeze, and the bees will have a picnic. We have had a bountiful supply of rain up to the present time, but we'll need another good one early in April to make a good season. If it comes in plenty, you will hear from here in the way of a honey crop. If it does not come, the output will be about the same as last year. It is a singular fact, that, in a half-crop year, we get a larger proportion of white honey. The white honey comes first, while the ground is still damp. The drouth dries up many of the flowers that yield the dark honey.

Sumac, Cal., March 27. J. P. Israel.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 184. *I have single-walled hives, and winter in cellar. Will it pay to give any extra protection after the bees are taken out in the spring? If so, what would you use?*

No.

Illinois. N. W. Dadant & Son.

I don't think it is necessary.

Louisiana. E. C. P. L. Viallon.

I think the extra protection would be a good thing.

Wisconsin. S. W. E. France.

Yes, I think it would if you live in a rather cool climate like our own.

Michigan. S. W. James Heddon.

I prefer to keep them in the cellar quite late. Nothing is lost by so doing, and much gained.

Illinois. N. W. C. Mrs. L. Harrison.

My bees require no better protection in winter or summer than single-walled hives.

Ohio. S. W. C. F. Muth.

Yes, an outer case, if taken out of cellar early; in fact, an outer case is beneficial throughout the season.

Vermont. N. W. A. E. Manum.

With our hives we see that the bees are covered up warm, and then let them go. I doubt whether packing would pay.

New York. C. P. H. Elwood.

It will probably pay to have cheap rough boxes to set them in, and fill between them and the hives with chaff.

California. S. R. Wilkin.

I've had no experience, but I suspect it might pay to have an outside shell, such as the 28 friend Root is trying this winter.

Illinois. N. C. C. Miller.

1. Yes, it will pay well. 2. A box eight inches larger each way than the hive, packed with planer shavings, sawdust, leaves, or chaff, and having a good tight roof.

Illinois. N. C. J. A. Green.

1. If colonies are strong, and have abundance of stores, they will likely remain quiet, and need no protection. 2. Any treatment that keeps the bees quiet *is good protection.*

Ohio. N. W. H. R. Boardman.

I think it will, but can not say from experience. Contract to six frames, and use two chaff dummies inside. My preference would be for light one-story chaff hives, used both in the cellar and out.

Ohio. N. W. E. E. Hasty.

I believe it pays *well.* I use a cheap, rough, ½-inch board outer case, and pack with chaff or cut straw, or an equivalent. I have done this for several years with a part of my colonies, and shall try to fix all so the coming spring.

Ohio. N. W. A. B. Mason.

I have proved by actual test for the past two years that it does pay well. I use a simple case with cover that I use for a shade-board later in the season. I nail but slightly, so as to separate the sides as I pack them away.

Michigan. C. A. J. Cook.

I use chaff hives, and winter in the cellar, and want no single-walled hives for the production of honey. This I say after using single-walled hives for 20 years, and single-walled hives and chaff hives side by side for 10 years of that time.

New York. C. G. M. Doolittle.

If bees are held in the cellar until soft maple is in blossom, we find it unnecessary to give cumbersome protection. But if I had to use something I would draw over the hive a case made of paper and oil cloth. I am even wintering bees outdoors with such a hood.

New York. E. Rambler.

It pays to protect from prevailing winds, either singly or the whole yard. It is best to give them the full benefit of the sunshine through the spring months. Swarms that have wintered well will be all right if so treated; if not all right, no kind of tinkering will prove satisfactory.

Wisconsin. S. W. S. I. Freeborn.

[Well, now, friends, after the above testimony we have in favor of cellar protection, after they are put out of the cellar why not, at least in moderate climates, let the protection take the place of the cellar, and then there is nothing to be said or done to the bees from November till April?]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

SPINACH IN APRIL.

Everybody has been calling for spinach. A few days ago our wagon folks wanted to know whether they could not send to Cleveland and get some. I told them that it was away up, and that we could not even think of it. A little later they wanted to know what I meant by "away up."

"Why," said I, "it will cost at least 10 cents a pound, and no one in Medina, hardly, would give that, especially as the freight must be added to the 10 cents."

"Well, Mr. Root, if you will get us a barrel I think we can show you that Medina folks will pay *15* cents."

"All right; I will risk the price of a barrel, to try the experiment. But you will see that we shall have it all to use up in the lunch-room."

Now, how do you suppose it turned out? Why, they sold the barrel right off in *one day;* and as the people were not satisfied we pulled a lot of small beets out of the greenhouse, that were crowding, and they took them all off at 15 cents a pound. As we did not have our usual supply of lettuce, in consequence of moving our greenhouses last fall, we have been sending to Eugene Davis, the originator of the Grand Rapids lettuce, and it has been going off barrel after barrel at 25 cents per lb. retail. Pie-plant is still bringing 10 cents per lb.; asparagus 40 cents, and other things in proportion. Why, it is astounding. I am sure spinach could be raised at a profit at 3 cents per lb. With us it usually winters in the open air without any trouble until some time in February. The heavy freezes in February and March, without snow, use it up. We have tried mulching, but somehow this does not work, or we do not have the right kind of mulching. I see evergreen boughs have been recommended. I presume they would do it to a dot where one has them. It is a mystery to me why somebody does not make a big thing on spinach. Last fall we put in a great lot of it, but it happened to be near the barn, and the poultry took a great fancy to it. I supposed they would, but I thought I had planted enough for the poultry and our market-garden also. But I tell you, a flock of Brahmas can get away with an astonishing amount of spinach. I still believe it would be profitable to plant spinach for poultry. If the ground is rich and in good order, it can be put in after potatoes, sweet corn, or almost any other crop. We succeed best by sowing it early enough to get it just as large as it can be without running up to seed before frost. In that condition it will stand like kale all through the winter; and so far we have succeded better without mulching than we have with. The mulch seems to make it rot. Perhaps the way to make a real sure thing of it is to put it in a cool greenhouse, as described in the new book, "How to Make the Garden Pay." Grand Rapids lettuce may be grown in the same way. Either of these plants may be kept all through the winter in our locality, without heat, provided the glass can be shut up tight, and the beds be a little below the surface of the ground. A windbreak of buildings or evergreens, so arranged as not to interfere with the sun, will be a great help.

OUR HOT-BEDS HEATED BY STEAM.

I should be glad to report that they have done as well during April as they did through March. About the middle of March we left on the exhaust steam until they became too hot, and many of the plants were injured; and since that they have got sort o' contrary. In fact, they have not done nearly as well as the greenhouse, where we could go inside and regulate the temperature; and I am now coming strongly to the conclusion that I want all my glass structures so I can go inside, under the glass, and regulate the temperature. During the past month every thing has grown so beautifully in the greenhouse, that I am somewhat losing my faith in the advantage of stripping the sash clear off; at least, our recent experience indicates that there is no particular need of removing the sash until, say, the first of April. Every thing in the greenhouse is doing just beautifully. Mr. Weed suggests that it is largely due to the fact that the *soil* in the beds in the greenhouse is old and thoroughly rotted compost. Every thing we put into it just climbs; while all that in our hot-beds, outside, was made up in the fall, winter, and spring. The manure and most of the materials are comparatively new.

LIMA BEANS.

It begins to be time to begin to think about lima beans. Shall we give up the pole limas, or will it still pay to provide poles? In our last issue I talked about growing *tomatoes* on poles; and I rather suspect it will pay us to have poles for lima beans. The bush limas on our soil—that is, Burpee's and the Kumerle, have, on our rich soil, made such a mass of vines that we have been greatly troubled with rot and mildew, and in getting the beans to ripen sufficiently for seed. A good friend of mine has been talking about the Challenger, and even sent me a pint by mail, so as to be sure I would give them a trial. Here is what he says about them:

> My family are all great lovers of lima beans, and I yearly put in 200 poles for our own use, selling the surplus in the city of Newark (pop. 185,000, two miles away), with whatever other farm products we may have. For the past two years I have grown Challenger beans, and they have sold much higher than Pratt's or Dreer's, which I have heretofore had. I have sold over $40.00 worth each year, *besides what we used ourselves*, and should have sold much more but for my mistakes in growing them. I planted three to each pole, four feet apart, but this was too close; there was such a wealth of vines that bushels of beans mildewed and never ripened. I shall grow double the number of poles this year, placing the poles five feet apart, with two vines to a pole. This bean throws out more runners than any other that I know of, and requires far more careful handling, as the vines are exceedingly tender. My beans were sold at one price—*thirty cents per half-peck, unshelled*, while an abundance of other limas were selling at 15 to 20 cts. for the same quantity. I never had nearly enough of mine.
>
> Lyons Farms, N. J., Apr. 21. WM. GRUMMAN.

You will notice, also, that he touches on this matter of having them rot and mildew. That has been one of our troubles, and I believe he is right in recommending poles to be not less than five feet apart, and not more than two vines to a pole. By the way, the lima beans can be transplanted without very much trouble, if you take a good lump of dirt along with the bean. After we have gone to the trouble of putting up poles, we can not afford to have any poles without beans on them; neither can we afford, for the reasons above given, to have more than two good plants to a pole.

STRAWBERRIES.

We never before had our strawberries looking so well at this season. Just as soon as the weeds showed themselves a careful man went all over them, and took out every weed at the same time that he removed the mulch. About half of ours were mulched and half were not. During such a spring as the past one, the mulched ones were ahead. Very likely, however, the unmulched will be a little earlier. Before *fruiting*, however, we *must* have some sort of mulching. I never want any more gritty and sandy berries after seeing friend Terry's. Cut straw is rather expensive with us, but we do not know of any thing else that will answer the purpose any cheaper. I am afraid that, if put on just before fruiting, the wind might blow it away. Very likely, however, if you get it on just before a good rain it will stay all right.

ANOTHER DEVICE FOR BERRY-PICKERS, ETC.

Seeing an illustration of your blackberry-picking machine, I thought of a simple device that I used. To-day I mail you a sample (just as it was made in a hurry), which has been used. The children went crazy for them, as they could use both hands when using this little machine, which any one can make in ten minutes. They are intended for holding a one-quart wooden berry-box, as you will see. The little cleat on the bottom, with a beveled edge inward, holds the bottom of the box in place. The button holds the top. The one I sent was for a child, as I notice the strap to go around the neck (an old suspender) is short for a person of medium height. Of course, I should prefer your device, as the berries are in a safer condition with the covered box.

I should like to ask how the perforated metal used over the entrances insures certainty of fertilization (see p. 168). 38th Ramble.

Manistee, Mich., March 17. W. HARMER.

[Thanks, friend H., for your suggestion. I will explain to our readers that it is simply a little board, perhaps 10 inches wide, a foot long, and ⅜ thick. A cleat is nailed on so as to catch on the bottom of the basket. Then a button at the right height turns so as to secure the top. Put on a strap or piece of tape, and hang it over the neck, and the berry-picker is rigged. To prevent it from swinging about so as to spill the berries, I would suggest, also, a belt to go around the waist.]

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

We have had scarcely any losses since the last report. Very fortunately the weather turned off warm, soft maples came out, and the bees have been having several gala days. Brood-rearing is progressing unusually well.

HOW THE COLONIES IN THE CELLAR WINTERED.

Generally speaking, our bees in the cellar did very much better than those outdoors last winter; and the consumption of stores per colony was, as nearly as we could estimate, only about half as much outdoors. It is more noticeable this spring than last, although even then there was quite a difference, showing a lesser consumption of stores in the cellar.

We carried out nearly all the bees, until I began to think there was not a colony lost; but of the last few, we found three that were dead. On the cover of one of the three I had marked last fall, with a leadpencil, "Very weak; will probably die." As nearly as I can recollect now, this had only a handful of bees. I presume Mr. Alley would have thrown them out on the grass. But I thought I would see how they would do. The two others that died, we know were not very strong when put into the cellar; and the inside of the combs was spotted a little with dysentery.

THE ADVANTAGE OF FULL BOTTOM VENTILATION IN THE CELLAR.

As usual for experimental purposes, I had left in the cellar some half a dozen hives with fast bottoms. The combs of these (as was also the case last year) were wet and moldy, and the bees looked a little "poddy," as if they were slightly diseased. On the contrary, the hives that had been tiered up *a la* Boardman, *without bottom-boards*, were comparatively dry inside, and the bees were healthy and strong.

I confess that, on account of the lesser consumption of stores, in view of the knowledge thus far attained in cellar wintering, I am inclining more and more to the indoor plan. The saving of expense of chaff hives compared with winter cases over single-walled hives, and the large saving in the consumption of stores, are two important factors that rather influence me toward the indoor plan; but nevertheless I suppose that we shall do, year after year, as Doolittle does—not put all our eggs into one basket, but winter both ways.

M'FARLAND'S HIVE-CARRIER—SEE PAGE 327, LAST ISSUE.

Mrs. Root, Jr., objected very strenuously to our having the cellar-wintered colonies put back of our house; so this spring, when we carried the bees out of the cellar, we were obliged to lug them a couple of hundred yards, to our regular home apiary. Now, it would not do to have *two* men, with a pair of hive-carriers, carry *one* hive at a time. So I told Mr. Spafford we would manage some way to have the order reversed; namely, one man to carry two hives. We very soon constructed one of McFarland's hive-carriers, as illustrated on page 327. After it was all done I began to feel as if it were a lot of toggery, and would cause more vexation in handling than it was really worth. I was agreeably surprised to find, upon trial, that it worked just as Mr. M. said it would; and not only that, we could load up in the bee-cellar, pass through two doorways, through the vegetable-cellar, and finally up the cellar-steps. In going through the doorway we walked a little sidewise; and in passing up the cellar-steps all we had to do was simply to tilt one side down, and the other, as a matter of course, would be brought up. Mr. Spafford carried over most of the colonies, and I tried a couple of loads to satisfy myself that the thing was all O. K. I was greatly surprised at the load a man can lift, and carry in this way with comfort. I took up a couple of average colonies, and carried them about 200 yards, over to the factory scales, zigzagging around among boxes and through doorways, and then weighed myself with the burden, with no inconvenience, and then went safely to the yard. By subtracting my own weight I found that I carried 80 lbs.; and I know I could have sustained, without any inconvenience, an even hundred. Perhaps I should say that the entrances, while carrying the hives, were closed. This made every thing so secure that the carrier could jolt around a good deal without being pestered by angry bees.

I should not omit to say, in the fall our hives were carried in by their bottom-boards. The hives were then piled up without bottom-boards, *a la* Boardman, the latter being stacked up by themselves in one corner of the cellar. In carrying the hives out, we put the bottom-board down, set the hive on that, and closed the entrances. We put another one right by the side of it, then, stooping down with the hive-carrier, picked them up and carried them to their location.

MYSELF AND MY NEIGHBORS.

Thou God seest me.—GEN. 16:13.

There seems to be a great dividing line among humanity; and the little text I have chosen seems to indicate where the dividing line is. A part of humanity believe that God sees when nobody else does, and behave themselves accordingly. The other part either deny the existence of any overseeing spirit at all, or they insist that God does not care, or does not bother himself to look after events and lives of each separate individual. One class think if they can hide their deeds from the eyes of men, nothing further is necessary. The other class live in the fear of God; and the Bible says, "The fear of the Lord is the beginning of wisdom." Some may urge and argue, that it is the duty of every one to do right because it *is* right. I should be very glad indeed to have them do this if they would. But, alas! such an incentive to right doing seems to lack strength and energy with the average individual. I was brought up, as you know, to attend church and Sunday-school. I learned Bible texts, and verses of Scripture by the hundred, without having any very distinct idea of what was implied in them. Nevertheless, I am heartily in favor of having children learn Bible texts. I will tell you presently why.

When I was about eighteen years old I taught school in a region then called "Black Swamp." My schoolhouse was a mile north of the town of Elmore. Ottawa Co., O. At that time I had rather broken away from the influences of Sunday-schools and Bible teachings, and was having my "liberty" as I called it. At eighteen I thought I was capable of taking care of myself without any such hindrances as Christianity imposes. One little sketch or glimpse of my life at this time comes vividly to my mind this morning. My principal companion and associate was a man perhaps twice my age. He was one of the class who pride themselves on their freedom of action and freedom of thought. One evening he announced his determination of going "up town," and I accordingly decided to go along. The first place we visited was a little grocery where they sold beer. The man was new in the business, and his premises were so narrow and small that he kept his beer in the cellar, and went down a little trapdoor behind the counter to draw it for his customers. My companion called for two glasses of beer; and while the proprietor was down through the trapdoor my friend jumped lightly and seated himself on the top of the counter. Then he leaned over to the shelves back of the counter, took a couple of nice oranges from a basket, pushed one into my pocket, and put the other into his own. When the storekeeper emerged with his two glasses of beer we were standing by the counter in our former attitude, looking honest and innocent, as a matter of course. My friend paid for the beer; and when we got out of doors we both had a good laugh at our own sharpness, and probably at the same time at the dullness and stupidity of a storekeeper who would go away out of sight and leave customers such a chance to help themselves. Now, I can not remember that any compunctions of conscience troubled me at all at that time. I am afraid, too, that many young men in their teens would have thought as I did, that it was a sharp trick, and not of much account any way. Had I reached over the counter *myself* and taken the oranges, it would have made a difference. But, you see I did not touch them at all. I had nothing to do with it. I could not very well object to his putting the orange into my pocket, because the proprietor came up so quickly that it would have got my friend into trouble. I presume likely I had heard it said, that "the partaker is as bad as the thief;" but I did not remember it then. There is one thing very certain: At that period of my life I did not think of the all-seeing Eye at all. I remained in the town of Elmore pretty nearly a year; but as I look back I can not recollect of having attended church or Sunday-school *one single time.* Although I *taught school*, the Bible was never my counselor or friend in need. I never read a word from it to my pupils, and I can not remember that I ever used a Scripture text. A schoolteacher nowadays who is in the habit of taking his beer would probably lose his place very soon. I had *learned* to drink beer with anybody who asked me; but I presume I kept the fact from the knowledge of my good mother. The pastors of the different churches in Elmore may have approached me on the subject of religion, but I can not now remember that they did. Somebody may have invited me to go to Sunday-school; but after a lapse of more than thirty years I can not recall that the matter of Sunday-schools ever came to my mind. I was like a thousand other boys who do not seem to think they have any thing to do but to amuse themselves, and perhaps do what they can to get an education. I remember that, during that winter, I sent for a small microscope, and became quite full of enthusiasm over the wonders it revealed. I read a good deal in the popular magazines, and got books from the various stores. But, so far as I can remember, the thought that I owed respect, reverence, and recognition to the great God above, never entered my mind. As I recall this period of my life, so far as I can after the lapse of years, I begin to have more charity for the boys and young men around me than I have had before. At some of my boarding-places (for I boarded around) they read the Bible mornings, and had family prayers; but I can not now recall a single thing that I heard from those Bible-readings, nor can I remember the words of the morning prayer, except in a *general* way. It was not customary in those days to make *practical applications* in Bible-readings and prayers as it is now. The Young Men's Christian Association, which sprang into existence about that time, or a little before, was entirely unknown to *me*. My Sundays were mostly passed in rambling about the woods and fields, looking up springs in the hillsides; and I remember of carrying lemons and sugar along, and making lemonade under the shady trees. The first thing Sunday morning was to study up how we could have the most fun. A great part of the Sabbath was, however, spent in reading magazines and newspapers. After a long ramble one Sunday with the friend I have spoken of, as we neared home we sat on the top of a fence to rest. I made a remark something like this:

"I do not know just how it comes; but to tell the truth, L., the *older* I grow, the more tasteless, insipid, and unsatisfying my life becomes. In fact, I am getting so lately that I don't enjoy things at all as I did when I was twelve or fifteen. I wonder how long this state of affairs is to continue."

Now, boys, take note of the reply; and bear in mind that it came from a man who prided himself on being a free-thinker, and being entirely untrameled by superstition or by religion. As nearly as I remember, his words were something like these; and what sort of words are they, dear friends, for a boy eighteen years of age! Said he:

"Well, Amos, it is a kind of sad fact; but facts are often sad things. My own experience has been just like yours; and you will find that every year that is added to your life makes it still more and more so. The world has not very much to offer. It is empty and hollow, and unsatisfying. The best thing to do is to get all the fun out of it you can while you are young; and as you get older, take it as the rest of us do."

This man was sarcastic and bitter whenever the subject of religion was mentioned. He even went so far as to sneer at virtue, and advised (although he did not say so in so many words) that we should look at the other sex as simply something that the world has to offer as a means of amusing ourselves, and having fun, and that it was their business to take care of themselves. If they were not able to do that, or were innocent and unsuspecting, it was *their* affair and not ours. His words and his companionship were poison to my young mind. But don't let me put the blame *all* on him. I was old enough, and had had sufficient Christian training, to have either rebuked him or to have withdrawn entirely from his company. He was, however, a skillful mechanic, and quite a leading spirit among the people of Black Swamp at that time. He may have been converted, like myself, since then, from the error of his ways; but if not, may God hear my prayer for him to-day.

Let us now go back to the oranges. The storekeeper I have mentioned was not only poor financially, but he was poor in health. His thin, sallow face made it known to all. His feeble looks come up to me now as I rebuke myself for my thoughtless dishonesty. May God forgive that foolish act, and the foolish years of my life at that period. The two oranges my companion took were worth, perhaps, a dime. That sum at compound interest would, after the lapse of thirty years, have amounted to about a dollar. Our poor friend has, in all probability, gone to his grave years ago. If so, he may have some relatives or descendants; and if such is the case I shall feel easier to hand this money over to them to atone, so far as I can, for that thoughtless piece of dishonesty. His name was Eoff; and as Gleanings goes even now to the town of Elmore, perhaps somebody whose eyes rest on this may be able to identify the poor feeble storekeeper of thirty-three years ago. Now to our text:

I do not know just what I believed at that time in my life; but the little story I have told indicates very clearly that I had no abiding faith in the all-seeing Eye. In former Home Papers I have mentioned some other events of that winter; and it is not strange that the seeds that were sown in my heart at that time bore a crop of evil fruit, even during a term of a four months' school. The fear of God was not in my heart at all. Very likely the effect of the teaching of Christian parents was somewhat of a restraint upon me; but I was a fair sample of a young man of perhaps fair ability, who has none of the fear of God in his heart, and who does not believe in the teachings of an all-seeing Eye.

A few days ago, Mr. C. N. Pond, a man prominent in Sunday-school work throughout our own and other States, was with us for a few days. He was invited to take charge of our noon service; and in speaking to our work-people there assembled he said something like this:

"My good friends, many of you are young, and doubtless have bright anticipations and high aspirations for the lives that lie before you. Now, although there has been considerable said about the enthusiasm of youth, I want to say to you that all of your bright visions may be realized—yes, even more than any of you, perhaps, have thought of in your imaginations. I am now toward fifty years old, and I, when young, had great expectations of the outcome of the years before me. They have all been realized, and more too."

At this point I began to feel exceedingly anxious, and perhaps a little uneasy. I wanted friend Pond to make haste to add the one important condition for realizing the bright anticipations of youth. He very soon put it in, and with emphasis enough to satisfy even myself. It was something like this:

"I say, these bright visions may all be realized; but I wish to add, that it is only on condition that you start out with Christ Jesus by your side, that you make him first and foremost, over all and above all—that your constant end and aim in life be to please *him* and not *self*. Do this, and life has more in store for you than any of you can think."

Now, I know brother Pond intimately. I have known him since he was a light-haired boy, and perhaps the butt and jest of some because they thought themselves ever so much smarter and *sharper* than he was. They laughed at him because he was honest and true; and it was whispered, too, that this light-haired, unsophisticated youth, had in mind to study for the ministry. He was not at that time what many of the world's people would call *sharp*. He never could, under any order of things, have been a party to stealing oranges, as I was. He worked on a farm in the summer time, and went to school winters; and when I first met him at an evening party the young ladies brought him in as the "hired man." He chose Christ Jesus as his helper and friend in early youth; and he has been laboring to serve him all these years. *No wonder* that each succeeding year grows brighter and brighter, and that every decade sees him a happier and a more joyous man than he ever was before. He and his wife were with us over night. At the breakfast-table in the morning he was, as usual, beaming and full of smiles and pleasant words for every member of the family; and his mood was so infectious that we all got happy by looking at him and hearing him talk. Finally he turned to his wife and said:

"There, wife, didn't I tell you what a good place I was going to bring you to?" And then he laughed at me as I commenced a remonstrance. But I had a point to make, and I was determined to make it.

"Bro. Pond, look here. I want to correct you, and straighten you up. It is *not* the place nor the surroundings that make you so happy; but the secret of it all is, that you are so *easily pleased;* and I appeal to your good wife for a second to my point. Is it not true, Mrs. P., and is it not one of the secrets of his happy and joyous life, that he is so easily pleased with every thing and everybody?"

She responded at once, "Yes, Mr. Root, it is a good deal as you say. He sees that which is good and bright and beautiful almost everywhere, and somehow he is pleased and happy when many people would only be finding fault, and complaining."

And now, dear friends, here is one of the great points of my talk to-day. Jesus "*pleased not himself;*" and brother Pond has been so long the intimate friend of our Lord and Master that he has caught the spirit from him, and makes people happy and pleasant and *good* wherever he comes in contact with them. And it *has* seemed as if the Master seemed to delight in giving him "pleasant surprises," such as I told you of in my last. Only last year he and his wife together took what he calls a "honeymoon," not only all over the United States, including California and the Pacific Coast, but even to the Sandwich Islands. When I first saw him after he returned I asked for an explanation. How could a minister of the gospel, who is comparatively poor in this world's goods, spend a whole year in a kind of travel that costs tremendously to most of us? Well, it all came about very simply. By chance or accident he has some very warm friends, and some who are quite well off. I say, "chance or accident." Is it really so? Well, these friends clubbed together and actually *insisted* that he and his wife should take this trip; and they regarded it as a privilege to pay all their expenses. Our good friend accepted the situation, not only as God's call, but went right along smiling and beaming right and left, making everybody laugh, and, if I am not mistaken, giving, by his air and manner and words and exhortation, almost without their knowing it, an invitation to lead pure, better, and more godly lives than they had been doing. A great part of his work in life is in talking to Sunday-schools and Sunday-school teachers. In fact, his business is to build up Sunday-schools, and to strengthen in the faith of Christ Jesus those already built; and in the faith, too, of that all-seeing Eye which is "in every place, beholding the evil and the good."

Let me now go back a little to my friend of former years. It gives me pain to speak ill of anybody, but I wish to give you *one glimpse* of the outcome of that man who said that every year that passed over his head made life more insipid, more dull, and more unsatisfying. Away back more than thirty years ago he let a bill run up in favor of a woman who did his washing. He put her off from time to time until he owed her between twenty and thirty dollars. She found out, years after, that he had just located in the vicinity of Medina, and asked me to go with her, as she was needy, to see whether he would not give her something on that old bill for washing that had been for years outlawed. We visited his home. He admitted the justice of her claim, but said that he was unable to pay a copper of it; and the evident marks of poverty all around him corroborated it. He said every thing had been against him; and, my friends, let me tell you that every thing is *almost sure* to work continually against him who scouts the idea that an all-seeing Eye looks down and watches every deliberate wicked thought of our hearts; and who proposes to please *only himself*, no matter who suffers by it. We have a plain Bible promise, that "all things work together for good to them that love God;" and you will also find that the contrary is true.

TOBACCO COLUMN.

"AND WHEN THOU ART CONVERTED, STRENGTHEN THY BRETHREN."

The above was the subject for our prayer-meeting last Sunday evening. A good brother, who is well along in years, who has only lately come out fully for Christ, gave an illustration of the way in which comparing experiences often helps (strengthens) those (the brethren) who are battling against temptation. An old friend of his came into his store. Both had given up the use of tobacco, and they were talking the matter over, and this friend gave this astounding bit of experience: He had used tobacco all his life, and the habit increased on him (as it usually does) until he was buying something like a pound a week. Finally he began to have spells of blindness. They would come on him out in the field, so as to make it difficult for him to see his way home. Doctors were consulted, but they could not tell what the matter was. O ye doctors! why are *ye* so blind—at least a great part of you, any way? The trouble kept growing worse and worse, and his family and friends were lamenting the sad fact that he would probably soon be totally blind. Finally it occurred to him that tobacco *might* have something to do with it, and so he left it off for just one day, and was not blind at all. Then he chewed again for just one day, and his blindness began to come back. Then he tested the matter thoroughly, and in a very little time it became plain that the blind spells came from the use of tobacco and nothing else; therefore, like a prudent and sensible man, he gave up the use of the weed. The speaker said this bit of experience did him a great deal of good, because it was so nearly like his own, only he never used it until it began to make him blind. Now, then, you friends of the medical fraternity, whenever you have a patient afflicted with some disease which you can not understand, please think of it, will you? and just *ask* if he is using tobacco.

I quit the use of tobacco nine years ago, and thank the Lord I have never used it since.
Tehama, Kan., Feb. 2. L. N. COOPER.

My son, who has been a reader of GLEANINGS for some time, came to the conclusion to quit the use of tobacco, which he has been using to excess. If you will send me a smoker for him I will agree to pay you if he begins the use of tobacco again. J. B. WHITON.
Ithaca, Mich., Jan. 20.

As Mr. R. J. McNeil has been induced by me and the Tobacco Column in GLEANINGS to quit the use of tobacco in any form, you will please send him a smoker. If he uses tobacco again I will pay you for the smoker. He is our school-teacher, and also a Baptist preacher.
Baird, Tex., March 4. J. M. MATTHEWS.

STILL FAITHFUL.

Somebody else would like to have GLEANINGS a little oftener, as well as wider and thicker; but if Home talks and Straws don't fail, GLEANINGS will be O. K. I am still faithful to my pledge in regard to not using tobacco. One year ago last January I quit. A. J. MEREDITH.
Nettleton, Ark., Apr. 15.

I wish to say that I have been a user of tobacco for about 30 years; and through the influence of GLEANINGS I have quit its use. I have not touched it for six months, and do not intend to. I do not want any pay for quitting. I consider I am more than paid already. I hope you may continue to extend your influence for good. Use this testimony if it will be of any use to you. DANIEL WRIGHT.
Violet, Ont., March 7.

Very nearly a year ago I left off the use of tobacco, and don't think I should have ever touched it again had I not gone into the bee-business. Two months ago I bought six colonies of bees, as a starter; and when I went to look through them I noticed my smoker was a very poor one, and almost worn out; but I thought I could make it do for the present. But the second colony I went into, it gave out altogether, and the bees semed to know it, for they stung me dreadfully till I called to a friend near by to let me have his pipe; and with the smoke I soon quieted them down. Now, if you send me a smoker I will not smoke again.
A. B. WILKINSON.
Hawks Park, Fla., March 22.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

Behold, the eye of the Lord is upon them that fear him, upon them that hope in his mercy.—Ps. 33: 18.

We observe that the markets are almost bare of choice comb honey of last year. Some say it was never so scarce before. New honey will begin to come in soon now.

We have had a beautiful spring so far, and reports are coming in that the bees are doing finely. *May be* we shall have one of the old-fashioned honey seasons this year.

When the forms for our last issue were about half off, we found we were obliged to make our journal 56 pages instead of 52, as announced. This made almost a double number. In this issue we give 16 pages extra.

The third number of the *California Bee-keeper* is at hand, and it is making great improvements. It is not only well printed and typographically neat, but it is well edited. It starts out right, and has begun in a large field. We wish it every measure of success.

W. B. Westcott & Co., of St. Louis, say that the lower prices on sugar will affect the lower grades of honey. First-class honey is a luxury, so they say, and not a staple, and the tariff reduction on sugar will not affect its sale. We are inclined to think they are right.

The *Canadian Bee Journal* seems to flourish in the hands of the senior editor, Mr. D. A. Jones, despite the fact that his best man, Mr. F. H. McPherson, is unable to render his usual assistance on account of the accident. Mr. Jones is infusing into it a good deal of sound practical experience.

As it is now approaching the time out of all the year when the bees are supposed to yield their owners returns, we must ask our contributors to let the subject of wintering drop for the present, and take up the more seasonable ones of how to get a honey crop, taking the same off, and marketing, and what implements or devices are best suited to accomplish these ends with the least labor.

Just after our last issue went to press, we learned that George H. Knickerbocker, secretary of the New York State Bee-keepers' Association, lost by fire his honey-house and workshop, and nearly all its contents, on the morning of April 1, about 4 o'clock. He says the origin of the fire is a mystery. Many of his books and papers were also burned. It was about two-thirds covered by insurance.

Mr. Hutchinson, of the *Review*, page 104, makes this very kind notice:

> The editorial department of Gleanings has improved wonderfully of late. It is no uncommon thing now to be able to cut out wisdom in solid chunks like the following."

And then he quotes our editorial in regard to the large or small bee-keeper, found on page 287. Thank you, friend H. Such an encomium is appreciated, inasmuch as it comes from one who not infrequently writes "solid chunks" himself.

If advertisers would tell how long their advertisement is to run, and how much space it is to occupy, it would save much annoyance and correspondence on the part of our advertising clerk. We speak of this, not in a complaining way, but very few give very definite instructions on these two points; namely, amount of space and length of time to run. If you do not know how long it is to run, say, "Continue till forbidden." This is definite, and then we know what to do.

The *Review* indorses what we said about having not only frames and hives movable, but even movable *apiaries*. Yes, that is what we are coming to. They do not need movable apiaries down, there in Cuba, where they can keep profitably 500 colonies in one location (see J. A. Osburn's article elsewhere); but in most places of the United States a location will not support more than 100 colonies; and if there is any considerable increase in colonies, they must be put in two or more out-yards.

BEE-ESCAPES FOR EXTRACTING IN CALIFORNIA.

In the *California Bee-keeper*, Mr. J. F. McIntyre says the bee-escapes for extracting have not come up to his expectations. The bees went down as folks said they would. But he says: "I have left the escape on for three days and three nights; and as only about half the bees were out, I thought it would be a little quicker to brush them off the combs. So I put the escapes away." Certainly a good many must have tried the bee-escapes last year for extracting. George H. Ashby, of New York, said at the Albany convention they had proved to be a grand success with him. Will he please tell us more about it? We should like to get other reports of experiments with the bee-escape.

BEAUTIFUL MAY.

Now is the time to plant almost every thing that grows in a garden. On our grounds we are not only putting in corn and beans, but squashes, cucumbers, bush lima beans, etc. It it true, some of them may come to grief; but it is only a small job to plant more, and there is quite a chance of getting a crop. Last season we planted Corey corn and kidney wax beans so early that I myself feared it was time and pains wasted. Well, both made a crop; and the only thing we felt sorry about was that we had not planted more while we were about it. The green corn brought 25 cts. per dozen ears, and the wax beans sold for 10 cts. *per quart*. We already have potatoes nearly knee-high. They were started, however, in the greenhouse. We saved them from one frost by bending them over and scraping dirt enough over them to hold them down. And, judging from the cold north wind that is blowing now, we may have to do it again to-night, April 28. Fruit-trees are full of bloom, and Michel's Early strawberries are showing quite a number of blossoms. As we have not had a sprinkle of rain for ten days, we have been having a splendid time for preparing the ground and putting in crops.

THE N. A. B. K. A. AND BEE-KEEPERS' UNION.

We wish to correct a misapprehension under which we were laboring in our answer to E. France, to the effect that the Bee-keepers' Union should not be absorbed into the N. A. B. K. A. We see by the *American Bee Journal*, "that the Union is already and has been a part and parcel of the Association, so far as its influence and protective care are concerned." As the Union has been a great success, history shows that its incorporation into the N. A. B. K. A. is and has been a good thing.

We mentioned editorially in the last issue, that three patents had been granted on a certain implement to be used in the apiary. We have since learned that there are now *four* patents on this one thing, all within a year. Nay, further: Two others have written us, asking whether we thought it would pay them to issue a patent on this same thing. We replied that there were already four patents on it, and advised them not to be in a hurry to waste their money.

The *Review* suggests that we call frames not closed-end, *open-end frames*. That might do. But there are some open-end frames that are fixed or spaced at regular distances; for instance, the Van Deusen. There are two kinds of frames in use—those that are fixed and those that are not fixed. We want to distinguish the two in some way. Call the former "fixed" and the latter "loose" frames. "Unspaced" frames would perhaps be more accurate, but it is a little awkward, and not as short as "loose" frames. Our industry is progressing, and accurate *short* names is what we want. Suggestions are in order.

FOLLOWING UP SLANDEROUS REPORTS.

The honey-business is still being slandered to a considerable extent in the newspapers, and it is the duty of the subscribers of said papers to send in a mild and gentlemanly protest. If an editor were to receive a couple of hundred of such, immediately after the issue of his paper containing such slander on our industry, he would begin to think there was something wrong; and if he did not insert one or more of them he would be careful that such stories did not find a repetition in his columns. The comb-honey yarn appeared in the *National Tribune*, under date of Feb. 19. One of its subscribers, however, sent a vigorous protest, which was published in the next issue of that paper. To show the falsity of its position, he sent them one of our cards, to the effect that we offer $1000 to any one showing a sample of artificial comb honey, and then added that this offer has been out for several years, and has not yet been taken up. Individual bee-keepers can do more than editors; and a hundred protests from subscribers will have a wonderful effect. Don't forget to follow them up.

HANDLING HIVES INSTEAD OF FRAMES; LOWER COST, NOT HIGHER PRICES ON HONEY.

A correspondent, A. F. Brown, of Huntington, Fla., writes:

> I keep bees for money, not for the pleasure, as some do; therefore I take advantage of all short cuts. I find to-day I do not do the work on a dozen colonies that I did on one, five years ago. I handle *hives* now; then I handled *frames*, and other things in the same way. You see the point. It is like a plow taking the place of a hoe.

Friend B. hits the point exactly. There is a good deal more good sense in trying to reduce the *cost* of a pound of honey than in trying to raise the *selling price*. Sooner or later bee-keeping has got to resolve itself into the handling of hives more, and frames less; and Mr. Heddon deserves no little credit for helping to start this idea. But in order to carry it out it is not necessary to have shallow brood-chambers. A Langstroth hive with fixed distances can be manipulated in such a way as to virtually handle hives instead of individual frames. It may be truthfully said, that old bee-keepers do not spend the time they once did over their bees; and we think it is equally true that, as our industry progresses, bee-keepers *as a class* to-day, or in the near future, will not spend the time over their bees they did a few years ago; in other words, they will get a thousand pounds of honey with less labor. We have *got* to handle hives more and frames less, to stand the prices. We have got to do things more in a wholesale way, in order to meet competition.

GOOD WORK IN THE ILLINOIS STATE LEGISLATURE FOR THE BEE-KEEPER.

We observe by the *American Bee Journal*, that the foul-brood bill, introduced into the Illinois State Legislature by the Hon. W. S. Smith, of Macon, will probably become a law. Good! Let other States go and do likewise. The bill introduced by J. M. Hambaugh, see p. 326, to prevent the spraying of fruit-trees when in blossom, is also about to become a law. Mr. H. writes to the *American Bee Journal* as follows:

> Hip, hip, hurrah! We have carried the "Spraying Bill" through the committee, flying. My speech, with letters, etc., have been ordered printed, and a copy placed on each member's desk. Tally one for bee culture. J. M. HAMBAUGH.
>
> Springfield, Ill., April 11.

We want the moral effect of these laws, even if we do not have to enforce them.

GREAT INVENTIONS; HOW DO THEY COME?

The most valuable discoveries do not always come by hard study, with the view of arriving at a definite end. No, they sometimes come by accident; and the one who met the accident is keen enough to recognize that in it there is a *principle*. Mr. Hruschka, who invented the extractor, did not study it out. His little boy, you remember, by chance happened to whirl a basket containing a piece of comb, around in the air. Drops of honey flew out. Hruschka was sharp enough to see in this the workings of *centrifugal force*, and that this same force could be made to extract honey from the combs. The invention of the steam-engine—that is, its main principle—was not studied out, but was largely the result of accident—or, if you please, lucky blundering. There is not so much in studying out a thing as there is in the ability to grasp a good thing when it presents itself. There is a great deal of folderol about lying awake nights, wasting strength and losing valuable sleep in developing a great (?) invention. The best ideas do not usually come to us when we are tired and worn out, and when sleep is the order of the moment. When they do appear they usually come in the freshness of the morning, after a good sleep, and *then* they come forth with almost startling suddenness. Would-be bee-hive inventors, instead of making a hive conform *entirely* to the habits of the bees, should consult a *little* the habits of the genus *homo*.

DEAD BEATS, AND WHAT IS A DEAD BEAT?

Perhaps many of you may say, "A man who does not pay his debts." Not exactly, friends. Very good men, sometimes, in consequence of sudden accidents or sickness, are unable to pay their debts; and where a man is unable to do as he would like, it is not fair to conclude that he is a dead beat. It is like calling a man a liar because he told one lie; or, if you choose, telling a man he lies because he tells something that is not true. In all these things it is the state of the heart rather than the act. Some little time ago I spoke of people who buy honey, and then, after a while, excuse themselves from paying for it by claiming that it was not pure. Such men I should call dead beats, and I think dead beats should be advertised far and wide, that honest men may not be imposed upon by them. March 5, 1888, John W. Manning, Salineville, Columbiana Co., O., corresponded with us in regard to some maple sugar and honey. After getting prices, and very likely samples, he sent us his order. It reads as follows:

> Inclosed find $8.65. Send the following goods by express. J. W. MANNING.

Well, it transpired that the $8.65 was *not* inclosed; but on the back of the order our friend writes:

> Send C. O. D. I had not time to get order in this mail.

Now, as C. O. D. would make additional trouble and expense, we thought to do him a kindness by sending him the honey and sugar right along. We know how it is ourselves a good many times, when we hardly have time to get an important order off before the mail closes. Well, we did not get our money; and the bookkeepers, after a long lot of writing and waiting, along in the fall of *1889* got the following:

> *A. I. Root:—Dear Sir:—*
> Yours of Oct. 18th is received, and in reply I will say that, if I owe you the amount, $6.74, as you claim, and due since March, 1888, I will settle the same as soon as I possibly can. The way I suppose the matter came in this shape, *it was no fault of mine. I was away from home about that time*, for some length of time, and the matter was not brought to my attention, and I did not get a statement to the effect you speak about. J. W. M.

Well, the above was bad enough, but we concluded to let it go. By the way, I want to say that a real good business man will not fail in his fair and square promises, even if he *is* called away from home; therefore his statement, which we have put in italics, we do think is true—that it is no fault of his. Well, we kept on urging him until Aug. 26, 1890, when he winds up with the following:

> If you think it advisable to throw off a part you charge for your imitation honey, let me know. J. M.

Since then we have been unable to get any thing from him at all. It affords a good illustration of the way one is led, to step from the straight and narrow path, and to yield to temptation. First, he said he did not have time to get his money order made out before the mail closed, and asked us to send along the goods *without* the money. This may have been true, and he may have been honest in what he said. But after he got the goods, his anxiety to pay the just debt seems to have a good deal abated. He next excuses himself for breaking his promise, by saying that he was "away from home." Then he makes different kinds of pretexts, and pretends to be offended because of our numerous duns, as if it were our duty to give up and let it go and sit down with folded hands, and be happy. Finally he decides, *two years and five months after* we sent him the honey without the money, that (come to think of it) the honey was "*imitation*." Now, if we have any more such men in the State of Ohio, or any other State, let us have their names printed so that we may all get acquainted with them. I tell you, there is nothing like "*getting acquainted*."

A 20 PER CENT AD VALOREM DUTY ON IMPORTED QUEENS.

Mr. W. C. Frazier, of Atlantic, Ia., recently wrote us, asking whether there was a duty on imported queens. We replied, to the effect that there was none, because queen-bees were used for breeding-purposes, and therefore exempt. It seems that Mr. Frazier was not entirely satisfied, and so he wrote to the deputy collector of customs, in New York, in regard to the matter. His reply is as follows:

> CUSTOM-HOUSE, NEW YORK,
> Collector's Office. Apr. 2, 1891.
> *W. C. Frazier, Esq., Atlantic, Iowa:*
> *Sir:*—In reply to your letter of the 30th ult., I have to say that "bees" would be classified as "live animals" upon importation, dutiable at 20 per cent *ad valorem*, under N. T., 251. Animals imported specially for breeding-purposes are exempt from duty under N. T., 482, upon compliance with the requirements of the law and Treasury regulations—to wit, production of a duly authenticated invoice—certificate of identification sworn to by the importer—certificate or score and pedigree, authenticated by the proper custodian or the book of record established for the breed in question, and report of the apiarian after examination. The importation of "bees" through the mails from Italy is prohibited by law, and, if so imported, they would be liable to fine and seizure. Respectfully yours,
> H. D. STANWOOD,
> *Deputy Collector.*

We thought there must be some mistake, and, if so, Prof. Cook was just the man to see that the matter were set right, as he had, in years gone by, handled successfully the transmission of queens through the mails. He wrote to his friend and former co-worker of the Michigan Agricultural College, Edwin Willits, now Acting Secretary of the Department of Agriculture, Washington, D. C.; and his reply, which Prof. Cook has very kindly forwarded on to us, is as below:

> DEPARTMENT OF AGRICULTURE,
> OFFICE OF THE SECRETARY,
> WASHINGTON, D. C.
>
> *Prof. A. J. Cook:*—Yours of the 16th instant is at hand, relative to the bee-question and the importation of queen-bees from Italy, upon which, under the new tariff, they charge 20 per cent duty. I have written to the Secretary of the Treasury this day, inclosing a copy of the correspondence, and asking him if it is possible for him to make a ruling that shall let bees come in free of duty.
>
> There is no question but that bees should be classified under the new Tariff Act, as animals; and the general law is, that the duty on imported animals shall be twenty per cent, under Section 251 of the Tariff Act; but in the free list, under Section 482, any animal imported specially for breeding-purposes shall be let in free; and then comes the proviso, which is, in substance, that, in order to relieve the importation from the duty, it shall conform to the requirement stated in the Deputy Collector's letter. It is very manifest, that the person who drafted the proviso had in his eye only domestic animals, and had no thought of any other animals, and, in fact, no thought of bees, or that bees would be called "animals." I am afraid that the proviso is so restricted that the Secretary of the Treasury will have no discretion. However, I have asked him to see whether he can give it some construction that will help us out. EDWIN WILLITS,
> *Acting Secretary.*

Accompanying this letter from the secretary was one from Prof. Cook, which we reproduce herewith:

> *Dear Friend Root:*—This looks bad. We have a friend "in court" who will do all that is possible for us. It will be bad if we have to wait for special legislation. A. J. COOK.
> Ag'l College, Mich., Apr. 24.

It looks as though we should have to submit to the inevitable until special legislation can be enacted in our behalf. As the acting secretary says, "The person who drafted the proviso had in his eye only domestic animals." Perhaps I should add further, that the deputy collector has probably made an error in regard to bees through the mails. They are not prohibited by law. The January Postal Guide for 1891 gives a list of the European countries to which queen-bees may be sent, and in that list is Italy. It would be a little strange if, reciprocally, Italy could not send any queens to us. If she can not, it is a very recent enactment of the postal magnates. We will have the law tested again at an early date.

OUR SHANE YARD.

WE are just about to put 50 colonies in our out-apiary on the Hoffman frames. We have been getting together the hives and frames, and in a day or two we expect to transfer that whole yard of loose frames to fixed frames. There are a good many hybrids among the lot; and, judging from the looks of the old hives in which they now are, they are adepts at smearing propolis over every thing.

HOFFMAN FRAMES.

FOR the last few days we have been trying the Hoffman frames in our home yard. We had a few colonies transferred to them last summer. If the day is cold, the propolis will come apart with a little snap, and make the bees a little "touchy." But we are not supposed to handle bees on cold days, usually. If the day is warm, they pry apart very easily. In fact, the most of them we could push apart with our fingers, without any screwdriver or wedge, and these have been used about a year now. We find Hoffman frames will kill bees if handled improperly. By using a little caution it can be avoided.

Perhaps we should say right here, while *we* are transferring into Hoffman frames to a considerable extent, we would not advise others to do it to an equal extent. We can afford to carry on experiments on a larger scale than many of the bee-keepers who have no bee-journal in whose interest such experiments are made.

SELLING SECRETS, ETC.

THE friends of Dr. Hall urge that he has as good a right to charge $4.00 for his little pamphlet as a physician has to charge $4.00 or $5.00, or even $10.00, for simply a prescription. It seems to me that a good many have some very loose ideas in this matter. A physician who has spent years in study, and, after that, still more years in the practice of surgery, acquires a knowledge that enables him to determine from long experience just what surgery or medicine may do for a patient. But he must see the patient personally, and give the case a careful personal examination; and his directions and decision to one patient would by no manner of means answer for even *two* patients, let alone several hundred or a thousand. It may be worth $4.00 or $10.00 for an expert to give his undivided attention to a single patient for one hour or even half an hour. But suppose he should undertake to print a little circular, which he hands to the patient who sought his skill, and then pretend that such printed directions would answer the purpose, and was worth $4.00. The thing would be impossible. A *great book* on surgery or medicine can be bought for $4.00; so can a great book on almost any subject whereon mankind wishes information, for a like amount of money. Books have a market value, as well as a load of wood or a load of coal; and he who pays a dollar should get a fair-sized book; and whenever one asks several dollars or one dollar, or even *fifty cents*, for what can be printed on a single sheet of paper, you can put him down as a humbug and a fraud. Valuable discoveries that come up suddenly, before the particulars have had time to get into books, will always be found in our papers and periodicals devoted to the subject in question. I know I have been over this ground again and again; but I propose to *keep* going over it so long as there is so much blundering and fraud. If there *is* any secret of general value that can not be obtained without the payment of several dollars, bring it to my notice and *I* will furnish the money, and then we shall all reap the benefit of it together.

SHALL WE FORGIVE AS WE HOPE TO BE FORGIVEN?

AFTER reading friend Easy's joke, on page 380, a shadow fell unconsciously across my spirits. For a little time I groped mentally to recollect what caused it. Finally I recalled a clipping I had seen from a newspaper. Here it is:

"CHARLES! FORGIVE ME."

THE PENITENT WIFE WRITES HER FORSAKEN OTHER HALF.

Under date of April 20, the Boston *Herald* has the following correspondence from Lewiston, relative to the sensational elopement case, the parties of which reside at Mechanic Falls:

Mr. C. H. Cotton, of Mechanic Falls, who has recently moved to the city, has received a letter from his wife, dated Los Angeles, Cal. In the letter she says:

"*Charles:* Please forgive me. Please don't hate me; but I won't ask you to love me again. I don't deserve love or any thing. I am an undone person. Oh how I wish I could see you to-night and have a talk with you! I do want to see you dreadful bad, but I never expect to see you again. It seems as if I never could stand it. From your wife,

AMANDA."

Mrs. Cotton, it will be remembered, left her husband December 22, and fled with her little daughter to Boston, where she is supposed to have joined Editor Mason, of the *Bee-Keepers' Advance*, who was visiting in Boston with his wife at the time. Mason disappeared from Boston the same day, and has not been heard from by his wife or family since. Mr. Cotton feels sure that the couple are living together in California.

Mr. Cotton has his son with him in Lewiston, and would like to have his daughter, but says his wife can get back the same way she went. The Mason property will probably be settled in the coming term of court.

Now, it is more than likely that all the parties concerned will see GLEANINGS, and may be the little plea I put in for these two deluded friends has been the means of bringing both to penitence; if so, may God in his infinite goodness and mercy grant that GLEANINGS may be listened to again. I do not know what is customary in such circumstances; but my advice is this: Let all parties concerned go back like the prodigal son. Friend C. is evidently willing that his wife should come back, if she has a mind to. For God's sake, dear sister, come back. If you have not already done so, separate yourself this minute from your guilty partner, and thus help *him* as far as possible to come back too. The thing is bad—terribly bad and wicked as it stands now; but it is never too late to mend. Forgive us our debts as we forgive our debtors. And let me entreat the bee-keeping world to drop it all and forget the past, that those two people who have been entrapped by Satan may repent and come back to their homes. Friend Mason, if this meets your eye I entreat you to come back at once and undo, while life lasts, the wrong you have done. I am sure, from what I know of you, that no happiness nor peace has come from this terrible thing. Last evening a friend of mine was examined with the view of being taken into our church. Some unfortunate things had occurred in his past life. During the past year, however, he has been a most exemplary Christian man, constant in attendance at the church, and exhibiting all the Christian graces toward those all around him. Our good pastor suggested that, in view of this, we need not stir up the past. Any man or woman who has done their duty well and faithfully a whole year, and is still ready to do well and faithfully every thing in their power, should be admitted to the church, in my opinion—that is, of course, providing such parties subscribe to the creed, or general system of tenets, held by such society. Very likely the *world* objects to letting bygones be bygones; but Christ Jesus says, "Come unto me, all ye that labor, and are heavy laden;" and he does not make any exceptions in his invitation. Why, then, should we?

SPECIAL NOTICES.

Our authorized agents, Hebblewhite & Co., 416 George St., Sidney, N. S. W., Australia, and Leonard T. Chambers, Adelaide, South Australia, and R. J. Cribb, Milton, Brisbane, Queensland, will receive subscriptions for GLEANINGS for Australia and adjacent islands.

MACHINE FOR BERRY-PICKING.

The apparatus illustrated on page 176, March 1st issue, will cost, well made, about 30 cts.; in lots of 10 we can furnish them for 25 cts. each—that is, if made just right for a quart berry-box. If wanted by mail, the price will be 15 cts. more for postage. The expense is a little more than I expected. Perhaps the apparatus described on page 383 of this issue will answer in place of it.

DOVETAILED HIVES, LAST YEAR'S PATTERN.

We have, packed away for shipment, about 1000 No. 2 Dovetailed hives of last year's pattern, being ⅛ inch narrower than we now make them, and having the old-style all-wood frames and slatted honey-boards. These we will furnish at last year's prices; namely, $9.00 for 10 without sections, tin separators, and fdn. starters, or $13.50 complete in flat. Same discounts for quantity apply as on new style.

EXTRACTED HONEY WANTED.

If any of our readers have any extracted honey to sell, either best or off grade, please mail us samples, stating how much you have, how it is put up, and what you want for it; and we will try to help you find a customer. We are supplying honey-jumble makers with off grades, and are sold out of all grades except the lot in New York, mentioned in the notice below.

CHOICE EXTRACTED HONEY.

We have, in New York city, 10 cases of 120 lbs. each, both of choice white sage extracted honey, and Ball's alfalfa extracted. To move this quick we offer it at 9½c in single-case lots; 2 cases or more, 9c per lb.; or 8½c per lb. for the lot f. o. b. New York, if unsold on receipt of order. This is a good opportunity to get some very choice extracted honey at a low price. Who wants it?

ADVANCE IN COMB FOUNDATION.

We call attention again to the advance in price of comb fdn. as announced in last number. The revised table of prices is as follows:

NAME OF GRADE.	Sq. ft. per lb.	—Price per lb. in lots not less than— 1 lb.	10 lbs.	25 lbs.	50 lbs.	100 lbs.
Heavy brood fdn.	4 to 5	48	47	46	15	41
Medium " "	5 to 6	48	47	46	46	44
Light " "	7 to 8	51	50	49	48	47
Thin Surplus "	10	58	57	56	55	54
Ex. thin " "	11 to 12	68	67	66	65	64
Van Deusen thin flat bottom.....	12	68	67	60	59	58

TOBACCO DUST FOR BUGS AND INSECTS.

As this is now the cheapest insecticide, it will be well to give it a good trial this season. It is not only cheaper *per pound* than slugshot, but it is so light that a single pound makes a great lot of it; and a whole hundred pounds costs only $1.75. A few days ago I remonstrated with one of our men because he had used it so lavishly when only a few bugs had made their appearance. When he told me he had used altogether only a single pound, costing but *a cent and three-fourths*, I concluded that his extravagance was not very great after all.

RUBBER TUBING, ETC.

So large a demand has sprung up for this commodity that we are enabled to give the following reduced prices: Per foot, 5 cents; 10 feet, 45 cents; 100 feet, $3.50. The above prices include postage by mail. If ordered by express or freight, with other goods, ½ cent per foot less than above prices. The hard-rubber terminal tubes will be, after this date, 5 cents each, or 45 cents for 10. Many times, under some circumstances, say, for instance, when one is away from home, the ordinary rubber-bulb syringe is more convenient than the pail of water and rubber tube described in our March issue; therefore we have made arrangements to furnish a good syringe, with good-sized bulbs made of best quality of pure rubber, for 30 cents each; by mail, 35. By inquiring prices at your drugstores, you can see whether it will pay you to send to us for them.

SHIPPING GOODS PROMPTLY.

A year ago now we were so crowded with orders that we were compelled to run our factory day and night, to keep anywhere within reach. A great many good friends were greatly tried by our delay in getting their goods off. We are glad to tell you that, so far, we are taking care of orders promptly, and goods are going off, as a rule, within three or four days after receiving the orders. We have been out of material for bee-veils, and waiting for more to come; but that is now here; and by the time this goes out all orders will be filled. We were also behind on foundation-mills; but as we write, all orders are filled, and mills are being made for stock ready to put into orders as fast as received. I believe we are up in all departments except, perhaps, the vegetable-plant business, which has had an unusual boom. In a few cases, where something irregular is ordered that has to be made in the woodworking department, there is a few days' delay; but as a rule you may depend on having your orders shipped promptly. We have a good deal of stock piled up, all ready to be marked.

SEED POTATOES.

We can furnish every thing advertised in our price list except the Early Ohio; and, by the way, is it not a little significant that the Early Ohio potatoes are gone, and none are to be had anywhere? A great many will tell you that they have some of the new kinds that are "just as good" or a little better. But is there really a better potato known than the Early Ohio? We have some Early Puritans that came from the South, that were a second crop—that is, they raised two crops in one season. As these last were dug very late they do not show nearly as much tendency to sprout as those dug and put away earlier in the season. They are, however, a little under size. The price is $2.00 per bushel, or $5.00 per barrel. In *some* respects we prefer the Early Puritan to the Early Ohio. We have also a fine lot of Monroe Seedling potatoes, put up in new barrels, ready to ship. These barrels, however, do not hold *quite* 11 pecks. The price is $5.00 per barrel. The Monroe Seedling, be it remembered, is the potato that T. B. Terry places above all others. It is, however, a late one.

VEGETABLE-PLANTS MAY 1.

Well, here we are again, with the demand greater than the supply. We can furnish almost every thing by tens and hundreds; but when orders come for thousands, as they do frequently of late, we are not big enough for the business. We can furnish good asparagus-plants in *any quantity;* and the experience of last season shows that they may be put out any time in the month of May, even though they may have made large shoots. Cauliflower-plants, we have very fine ones in any quantity; but almost every thing in the line of cabbage-plants is picked up a little before they are as large and strongly rooted as we should like to see them. Tomato-plants are rather backward, on account of the prevailing north winds. Of course, the windmill supplies plenty of water, but it does not quite answer the purpose like warm showers, with a light wind from the south. Pepper-plants are scarcely strong enough to ship safely; and our sweet-potato plants are not up yet. Strawberry-plants are going daily by the thousand; but as they are beginning to put out blossoms, they will not be as good to plant many days. By picking off the blossoms, however, and the large outside leaves, they will do very well for some time yet. We are doing all we can to get new plants—that is, sets from runners, strong enough to ship as early as possible. We shall probably have a limited number of nice ones in June. The demand for Haverland strawberry-plants has been tremendous. Besides our own stock we have purchased *eleven thousand* of our neighbors; and if anybody has some nice ones which he can furnish at wholesale price, we should be glad to hear from him.

Bee-Hives, Sections, Etc.

BEST GOODS at LOWEST PRICES.

We make 15,000 sections per hour. Can fill orders promptly. Write for free, illustrated catalog.

G. B. LEWIS CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

BEES and yellow Italian Queens for sale in June at Chenango Valley Apiary. **E**VEN the Best Select Tested $1.25. Untested $1.00. Order early. Send for circular. **E**xcel. They do all other seasons, my old customers will say. **S**

MRS OLIVER COLE, Sherburne, Chenango Co., N. Y.

Please mention this paper.

OUR ROOT BEES.

We have Italians that "Root" the flowers o'er and o'er.
At the end of the season they will score you 100 lbs. or more.

Tested queens in May, $1.50; 3 for $4.00.
Unt'd " " 1.00; 3 for 2.50.
" " June, .75; 3 for 2.00.

1, 2, and 3 frame nuclei from $2.25 to $4.00, with queen. Pounds of bees. All kinds of apiarian supplies, etc. Catalogue free. 9tfdb

JOHN NEBEL & SON, High Hill, Mo.

Please mention this paper.

Queens Ready to Mail.

Safe arrival guaranteed. Untested (Italians) $1; 3 for $2.75, and $9.00 per doz. Tested queens all sold, but will have more by June 1st (reared this season) at $2.00. Order early, but do not say for us to send queens before you actually wish them sent. Make money orders payable at Clifton. Send for price list, etc., to **COLWICK & COLWICK,**
4tfdb **Norse, Bosque Co., Tex.**

Please mention this paper.

FOR SALE CHEAP.

1000 lbs. of bees in wire shipping-cages. 100 queens in May at $3.00 per doz.
9d ANTHONY OPP, Helena, Phillips Co., Ark.

Tested Italian queens from $1 to $1.50. Untested, 75 cents. Address

F. C. MORROW, WALLACEBURG, ARK.

Please mention this paper.

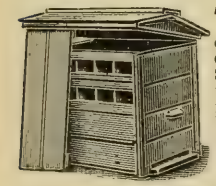
Sweet Honey

AND PLENTY OF IT.

By using the latest and most convenient hive for everybody. Now in use five different kinds. Also Sections and Supplies. Address

D. STUTZMAN, Ligonier, Ind.

Please mention this paper.



A CHANCE TO MAKE MONEY.

We want an agent in every county to sell our chaff hives, on a liberal commission. Send $1.75 and get a sample nailed up and painted, and you are ready to take orders at once. Winter cases, thin Dovetailed hives, and a full line of supplies. Send for list and terms.

ROE & KIRKPATRICK,
9d **Union City, Ind.**

Please mention this paper.

Bees at Auction!

At Summit, Union Co., N. J., 80 colonies Pure Italians, and every thing needed to run a first-class apiary for queens and extracted honey, will be sold at auction at the apiary, on May 5th, at 1 o'clock p. m. 9d W. B. COGGESHALL, Summit, N. J.

Please mention this paper.

LADIES' FINE SHOES.

Price $2.17 Postpaid.

Genuine Kid, Soft Soles, Perfect Fitting, Stylish, Comfortable, and made to wear. Try them. You will be pleased. Sizes 1 to 7; widths, C, D, E, EE. What size do you wear? Is your foot broad or narrow? Do you want a broad or narrow toe shoe? Sure fit, if you answer these questions.

I SELL GOOD SHOES.
NO CHEAP STUFF.

Send P. O. order, registered letter, or N. Y. draft.

C. L. GRIESINGER, MEDINA, O.

Reference—Gleanings. 8-9-10d.

Please mention this paper.

ITALIANS Tested queen, $1.50; Untested, $1.00. Nuclei, brood, and bees by the lb. Send for price list.

MRS. A. M. KNEELAND,
Box 77. Mulberry Grove, Bond Co., Ill.

BEES FOR SALE.

COLONIES,
NUCLEI,
and QUEENS
at living rates. Send for circular and price list to

C. C. VAUGHN,
Columbia, Tenn. 6tfdb

☞In responding to this advertisement mention GLEANINGS.

DO YOU KNOW

that you can buy a good hive for 55 cts., 100 brood-frames for $1.00? Nice foundation cheap. Smokers and feeders, and every thing you need. You can save money by sending an order. Special terms to dealers. 8-9-10d

W. H. Bright, Mazeppa, Minn.

☞In responding to this advertisement mention GLEANINGS.

MY 23D ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. *H. H. BROWN, Light St., Col. Co., Pa.*

HOLY-LAND QUEENS.

A specialty of breeding them, and strict business. Will be sold at the most reasonable prices. 9d

GEO. D. RAUDENBUSH,
445 Chestnut St., Reading, Pa.

Please mention this paper.

NEBRASKA

3-frame nucleus (without queen) $2.00.
3-frame nucleus (with tested queen) $3.50.
3-frame nucleus (with queen from our own apiary) each, $2.50. Pure Italian queens, each, $1.50. Descriptive price list free. **J. M. YOUNG,**
Box 874. 7tfdb **Plattsmouth, Neb.**

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May or June, tested, $1.50; untested, $1.00. July and August, tested, $1.00; untested, 75 cts. Bees at $1.00 per lb. Make money order payable at Waynesburg, Greene Co., Pa. **MRS. A. A. SIMPSON.**
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GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees And Honey And Home Interests.

Published by A. I. Root, Medina, O.

Vol. XIX. MAY 15, 1891. No. 10.

STRAY STRAWS

FROM DR. C. C. MILLER.

A poultry department added to *C. B. K.*

There are some things that I know all about, but it isn't about bees.

Cheap honey is Hutchinson's cure for adulteration. Too cheap to be good.

Nectar contains 60 to 85 per cent water, generally 80 to 85 per cent; ripe honey, 18 to 25 per cent.

D. A. Jones defends in vigorous style his belief that honey is the principal vehicle for carrying foul brood.

Pollen from white, red, and alsike clovers, Doolittle says in *A. B. J.*, is not of different colors, but all greenish-brown.

A French bee-keepers' song is wanted, and a prize (Dadant's French Langstroth) offered therefor. Have the French a Secor?

Hutchinson's skimmer is in good working order—3½ pages of "cream" in last number, and ⅔ of it from Gleanings. Nice compliment for Gleanings.

In baking bread, or at any other time, if your oven is too hot, put a pan of cold water in it and you'll be surprised to see how rapidly it will cool off.

Soft maple was in bloom March 30, but it turned cold right off, and wasn't warm enough to get bees out till April 12. Don't put your trust in maple bloom.

Spreading the brood-nest. H. Spuhler, in *Revue*, says of it: When we wish to resort to it, it is dangerous; and when it is no longer dangerous we can dispense with it.

Excluder zinc. The *B. B. J.* says, "We prefer the metal to lie close on to the top-bars, with no space between, and with the lengthway of the holes running across the space between the frames.

My respect for E. R. R. is increasing. On page 323 he applies "she" and "her" to a worker instead of "he" and "him." Twenty years from now I hope no one will speak of he-workers.

Interesting and profitable conventions—how to make them so, was discussed at the Ohio State Convention. Among things suggested were: Talk; recess; getting acquainted; asking questions. Listening to long essays was not mentioned.

A. G. Hill tells in the *Review*, that, in 11 consecutive years, he found the average shrinkage on summer stands, protected thoroughly, was 12 lbs. 14 oz. per colony from Nov. 1 to April 1; in cellar, about 1½ lbs. less, but the outdoor bees were more thrifty, and seemed to have more brood. Would it be the same further north?

Don't either. Friend Hatch, I don't see that you would be obliged at all to keep from changing ends with round-headed nails on top-bars. But after trying the Van Deusen spacers, I don't believe I should be satisfied with them or with nails either.

Elwood reports his bees carried into the cellar with closed-end frames at the rate of two per minute for five men. Mine, with open-end frames, were carried out at the rate of two and a half per minute for five men. But they were dangerously light.

Harmon Smith, in *A. B. J.*, is after the Michigan convention with a sharp stick, because of their adulteration resolution. He thinks there was no foundation for the statement, "that many of the cities of this State are supplied with adulterated honey."

Mr. Cowan, in his new book, tries very carefully to conceal the fact that he has ever made any investigations for himself. His book fairly bristles with citations of authorities. In spite of that, he is well known as an able microscopist and careful investigator.

Chilled brood never made foul brood. Does any one really believe it ever did? Don't they rather hold this view? The spores of foul brood are so plentiful that they are floating around everywhere, and a lot of chilled brood is just the right soil for them to take root in, just as white clover seems to come up of itself.

Prof. Cook has me in a corner again. I never thought of there being any difference between sugar syrup fed in fall and in winter. So I must agree that good honey may be a safer food to be given in winter than sugar syrup. But another question comes. If we feed 25 lbs. of syrup in 24 hours, have the bees time to digest it before storing it?

Cheap watching. Instead of keeping some one watching for swarms, here's the way the *Review* reports Mr. West's plan: Clip the queen. Clear away rubbish, and a few inches in front of the hive stick in the ground, not upright, but leaning away from the hive, a branch of an apple-tree perhaps an inch in diameter and two feet long, with a few twigs at top, twigs cut back to 4 or 6 inches. Swarm issues, queen climbs stick, returning swarm clusters with her, and stays till hived.

A new crop of *noms de plume* is coming on. I'm sorry. *Noms de plume* used to be rather common, but they had about all died out, and I'm sorry to see them revive this side the water. In a specific use, a *nom de plume* is all right; but when a man writes as a bee-keeper it's more useful, to say the least, to see him use his every-day name. The word of A. I. Root carries more weight than that of "Novice," and "Rambler" always looks out of place in the Question-box.

Broodless bees are better in February, Woodchopper, because—well, because. I never saw a case of spring dwindling without much advance in brood-rearing. They're quieter without brood; and if they breed in February they will not keep so quiet till the first or middle of April. Raising brood is work, and it isn't *natural* for bees to work without flying. Yes, I know "Nature sets queens to laying shortly after Jan. 1, sometimes sooner," and then Nature sometimes sets those same bees to getting the diarrhea, dwindling, and so on.

GENERAL CORRESPONDENCE.

DIVISION-BOARDS WITH RUBBER EDGES.

MR. JULIUS HOFFMAN TELLS HOW TO RAISE A SURPLUS OF QUEENS WITH LITTLE LABOR AND EXPENSE.

In my last article I did not mention the difference between the two rubbered boards in the hive I sent you. The one board that has the rubber edges only part way down is a spacing-board for general use; and the other, with the rubber on three sides, so as to fit the walls and bottom of the hive, I use for a dividing or separating board. Whenever a colony has to raise a queen, all I have to do is to place one of these dividing-boards between the frames, as near the center of the hive as the entrance of the hive will allow it, and I have two small separate colonies, in each of which a young queen can be raised with hardly any extra trouble. The advantage of this management is easily understood. If one half of the colony fails to raise a perfect queen, the other half most likely will; or, if either side succeeds in getting a good fertile queen, we have a spare one which can be used elsewhere; or, if not needed, we have the choice of the two queens, and destroy the one not wanted.

HOW MR. HOFFMAN DIVIDES A COLONY.

In dividing the colony, the tops of frames will, of course, have to be covered, so that the separated bees can not get together. I use a heavy enameled cloth for this purpose. An extra entrance, which I make at the rear of the hive, as you will notice by the hive I sent you, is, of course, needed. This entrance should not be exactly opposite the front entrance, or center of the hive, but a little to one side, so that the separating-board can be inserted between the front and rear entrance. When dividing the colony the rear entrance is opened and the hive is turned half way round, so that the now two entrances are to the right and left of the positions formerly occupied by the front entrance. The flying bees will in this way divide up without any trouble. After uniting the colony again, the hive is turned round once more to have the entrance as before dividing, and the extra entrance is closed.

In hives where the frames run the long way, as is the case with most of the hives used at present, the extra entrance for dividing had better be made at one of the sides of the hive, right or left from front entrance, in which case the hives will, in dividing, have to be turned only enough to make part of the flying bees enter the side entrance. A 1¼-inch hole, bored with a center-bit, will suffice for this temporary side or back entrance, which can, after uniting the colony again, be closed with a plug or slide. Should the divided colony be strong enough to need a surplus arrangement, then we can give the one half of the divided colony less of bees and brood, and cover the frames of the other and stronger half only partly or not at all, to give passage to the super. In general I use only such colonies for the purpose of separating to raise queens that are not so strong as to need any super, as I get enough young queens by using only a certain portion of the colonies for this purpose. In uniting again, a separated colony, after removal of one of the queens or queen-cells, the separated bees should get acquainted before taking out the division-board. I do this by partly raising the covering of frames of both divisions, and leave them so for a few days, or not longer than a week's time; then after removing queen-cells, if any have been built again, take out the separating-board, shake most of the bees from the combs to get them mixed, and use the smoker on the bees freely.

Before I close I will mention another use I make of these rubber-edged separating-boards. When it happens that I am prevented from working an apiary in time to cut out queen-cells, I often find young queens already leaving their cells, or just ready to hatch. In such a case, if I have use for queen-cells or queens just hatching, I can in a few moments separate the combs having queen-cells or queens on them, by putting between the frames of comb as many boards as are needed, or put some of these frames, bees and all, in another empty hive, with boards between. In this way, when covered and kept in a shady place, the separated queen-cells and queens can be saved and used as wanted during the day. It will be found an advantage to leave a certain number of the separated colonies, containing two queens, until fall, or even to spring, as some queens may be wanted to repair queenless colonies. In a good cellar, or with good protection when outdoors, they will winter as well as when not divided. In the winter of 1882-3 I put into winter quarters 75 of such divided colonies, containing 150 queens. They wintered so well that I lost not one; and when warm weather came I took out from all the strongest double hives one queen with her bees and combs, and built them up to good colonies.

In summing up I will say, that, although the dividing of a colony within one hive to raise extra or surplus queens is not a new idea, yet it is certainly of use to practical bee-keepers, and we ought to find out the best and simplest method to do it. I have used the rubber-edge separating-boards, as I make them, for many years, and have found them useful and durable. Separating-boards without a rubber edge are not practical. They either work too loosely or are too tight, are glued fast too much by the bees with propolis; and as the boards of the hives shrink, swell, or warp, they would not be reliable in preventing bees from passing through.

JULIUS HOFFMAN.

Canajoharie, N. Y., Jan. 14.

[In order that the reader may more fully understand, I will ask him to turn to page 367 of our last issue, for a cut of the separating-board, with its rubber edges. This board has been adapted to the L. size. The rubber is simply a kind of packing used for water-pipes, about 1/16 thick, and in long strips about ½ inch wide. Its manner of insertion is shown in the cross-section, in the cut referred to, on page 367. From experience, I know that a division-board that fits tight, or nearly so, to the inside of the hive, is not easily removed after the bees have propolized things down solid. A division-board that is close-fitting should have a yielding edge like the chaff division-board illustrated in our A B C of Bee Culture; or when a plain board, it should have a rubber edge, as described by Mr. Hoffman.

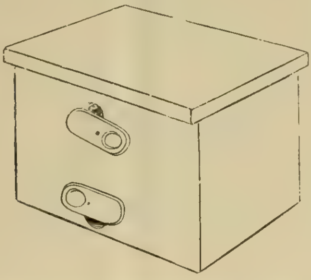


DIAGRAM OF HOFFMAN'S HIVE.

In order that the reader may also undestand in regard to Mr. Hoffman's entrances, I here reproduce an outline drawing, showing the hive-entrance, and the manner of closing the same with a wooden button. One end of the button is left solid, and the other has a hole (covered with wire cloth) the size of the entrance. When Mr. Hoffman is ready to move his bees he drives a little smoke in near the entrance; and after a sufficient time has elapsed for flying bees to return, he goes around and revolves the wooden buttons so the wire cloth covers the entrance. You will remember that he does not have to fix up his frames. By simply revolving the button he is ready to load the hives on the wagon. He assured Mr. Elwood and me that these buttons gave sufficient ventilation. Mr. Hoffman's hive has a fast bottom, and the cover telescopes over the top, and rests on cleats nailed on around the hive, just far enough from the top edge to leave a bee-space above the frames. It is not shown correctly in the diagram, but you will get the idea.

Mr. Hoffman, above, has not explained the use of the upper entrance; but I will state that, on the rear of the hive sent us, there is another entrance with a button, as Mr. H. explains. The plan of forming nuclei by the use of division-boards is a good one, and is similar to one practiced by neighbor H. on the Dovetailed hive. By a slight modification of the bottom-board the same result may be attained. Mr. Harrington says he is pleased with that method of raising queens, and he raises for us a great many during the season.] E. R. R.

THE PALM-WEEVIL.

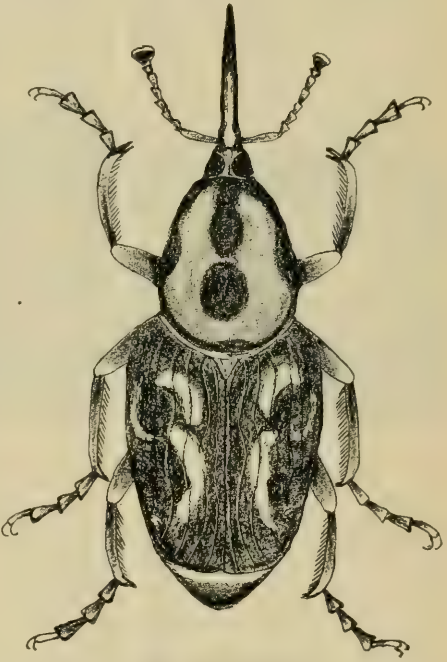
PROF. COOK TELLS US ABOUT THEM.

Mr. C. G. Ferris sends me this, one of our largest American snout beetles, or weevils, which he says he took from a comb in a hive in his apiary in Florida. He further states that it was sucking honey with its elephant-like trunk. Mr. F. concludes with the request that I tell all about this insect in GLEANINGS.

This is really a very interesting occurrence. I have never before heard of this or any other weevil, or even beetle, that had an appetite for honey, which upon occasion it sought to gratify. This huge weevil is common in the Gulf States, and I should be glad to learn whether any other of our Southern bee-keepers have noticed this peculiar habit. The form of this interesting weevil, and the peculiar coloration, are well shown in the figure. The snout, thorax, and an irregular line on each wing-cover, are dark red, while the base of the head, a narrow border and two spots on the thorax, and the main portion of the wing-covers, are black. The wing-covers are truncate and abbreviated behind. The exposed portion of the abdomen, just behind the wing-covers, is red, while the tip is black. Beneath, the red and black are about equal in extent, and the black is dusted with a whitish bloom. The antennæ are elbowed, and project from the snout near its base. The beetle is 1¼ inches long, from the tip of its abdomen to the tip of its snout.

The grubs of these weevils are footless, and work in the palms. The long snout, or proboscis, of weevils, and the footless condition of the grubs, are important characteristics of members of this family. The plum-curculio, wheat-weevil, and acorn-weevils, are other examples of this large and interesting family of insects. Several of this family are borers, and are no slight pests.

This species — the palm-weevil — bores in palms. It is known in science as *Rhyncophorus cruentatus*, Linn. I find it varies greatly. Some in our collection are wholly black, while nearly all have wing-covers that have very little or no red. This one shows the rich mahogany red in abundance, and is really very handsome. I am specially pleased to secure this specimen, not only from its beauty, its wide variation from the others in our collection, but most of all from its peculiar habit of banqueting on the delicious nectar of the hive. I shall be very glad to hear whether any one else has noted this habit, and shall be very much pleased to receive other specimens. I do not think the habit is sufficiently pronounced to make it especially mischievous. The insect is very hard, and I can readily believe it would be little disturbed, even in a bee-hive or hornet's-nest. Indeed, I found it quite difficult to pass a large insect-pin through its hard crust.



THE PALM-WEEVIL.

Agricultural College, Mich. A. J. COOK.

MANUM VISITING H. B. ISHAM.

BEES AND CHICKENS.

"Good afternoon, Henry. I have come over to look after the bees, and see your 500 chicks, and have brought Mr. H. B. Warner with me for a ride."

"Well, gentlemen, I am glad to see you, and will show you the chicks with pleasure. Manum, I have been thinking for the past few days that I would go over and learn your new way of caging queens to prevent swarming. But here you are, and I hope you will favor me with your new method before you return."

"All right, Henry, I will. How have the bees wintered here?"

"Very well indeed. I have lost but two out of 48 colonies. All are strong, but rather short of feed. I am determined to crowd the feed to them this spring, to induce brood-rearing all I can."

"I want to see the chicks. Let us go into the brooder-house. Oh my! what a lot of chickens! and all as white as snow. How nice and plump they are! Why, some of these must be large enough to dress, are they not?"

"Yes, nearly so. I expect soon to dress 200 to make room for more that will hatch in a few days."

"What breed are they? I never saw any like them. Are they the new breed you told me about?"

"Yes, they are an entirely new breed originated by my partner, Mr. Wm. N. French, of New Haven, which he has named 'The White Wonder.'"

"Henry, how do you warm this building? It can't be you warm it with this little dummy of a stove?"

"Yes, that little 'dummy of a stove,' as you call it, does the business. It is a heater made for the purpose by Bramhall, Deane & Co., of New York. This building, as you see, is simply boarded and papered, and is 65 feet long by 17 feet wide; and this little heater warms it sufficiently, and consumes only 35 lbs. of coal in 24 hours. It is done with hot water conducted in pipes the whole length of the building under this walk in the center."

"Well, Henry, I should think you had things well arranged for this business. These chicks certainly seem to be contented without a mother, and it seems so strange to me that they should thrive so well without the old hen. And now let me tell you that I think I have caught on to something new by coming over here. You know that Mr. Ira Barber advocates a warm place in which to winter bees. Now, why couldn't you have a cellar under this building, in which to winter your bees and regulate the temperature in it with this same apparatus, and without extra expense? In this way you can have business both summer and winter—bees in summer and broilers in winter."

"Why, I had never thought of the cellar business. I wish now I had made a cellar under this brooder-house."

MR. H. B. ISHAM'S BEE-YARD, WITH HIS POULTRY-HOUSE IN THE BACKGROUND.

"Now, let us think a little further. Why not build a long narrow bee-house, say long enough to hold 150 colonies, 50 on a side, and allow them to remain in it summer and winter? Set the hives close up to the sides of the building, and make entrances through the building to allow the bees to fly out whenever they wish, the same as when wintered on summer stands, and then warm the building with one of these heaters whenever necessary; and, further in spring, when brooding commences, and we have a cold sour spell like the present unfavorable weather for bees, why, just fire up and keep the bees warm and allow them to go on with brood-rearing. In that way we could succeed nicely in getting strong colonies by the time clover blooms; and, besides, we should have less dwindling. Your brood-house here might be made with another story, and keep the bees above and chicks below. In that way one heater would do the business for both bees and chicks."

"Say, now, Manum, I am just going to try that next fall, on a small scale, and we shal see how it works. I am glad now that you came over and gave me these points. Now, what about the caging business?"

"Yes; and let me add that, by running the bees by this caging method, they might as well be on the second floor as on the first; for there will be no hiving of swarms. Now, my way of caging is this. I take a partly filled section and put on each side of it some pieces of perforated zinc, and fasten the zinc in place with tin points, the same as I would glass. This serves as the cage. I now put in the queen and return the section-cage to its place in the clamp(case), which, of course, is on the hive. You see, the bees are not queenless, and yet they can not swarm—or, at least, they won't go away when I am not there. It will be necessary to look the combs over in eight days to cut out any queen-cells that may have been started, and then in four or five days later look them over and cut out queen-cells again, and liberate the queen and remove the section-cage, for that will contain eggs. By using the zinc the bees can have direct communication with the queen; and by having a queen thus continually in the hive the colony will, I think, work better than if the queen were removed entirely, and there is no fussing to introduce queens, as she is already introduced, and we have simply to liberate her. I tried several colonies on this plan last season, and I like it better than caging the queen in the brood-chamber, for the reason that the queen is so far removed from the brood that it seems to have a greater tendency to prevent the swarming impulse later on, as none of those run in this way offered to swarm at all last year, while some of those where the queen was caged in the brood - chamber did. However, one year's trial does not always prove a thing free from failure."

"Thanks for the explanation, and I shall try it with a few hives this season. But, suppose the queen should get out through the perforations; wouldn't it cause trouble in an apiary that you visit only once a week?"

"Yes, it would; hence it is necessary to procure zinc that is just right. The zinc I had last year did not always hold the queens, therefore I shall try another make this year."

"There, Henry, I notice Mr. Warner is getting uneasy, and I think we shall have to go; but first, I want to take a view of this apiary and your chicken-house, so let's go out and see whether I can find a good position. There, I think the best place is from this corner of the yard, and you may stand down there by a hive, and Mr. Warner out here, and I will soon have you both. There, all done. We will now go. Good-by. Oh! by the way, Henry, have you heard that GLEANINGS has a new editor?"

"No; who can it be?"

"I believe his name is Leland Ives Root, born Mar. 29, 1891, to Mr. and Mrs. E. R. Root."

"Ha, ha, ha! Good! I am glad to hear the good news. The more Roots, the better. It is said, you know, that the small fibrous roots are the feeders."

"Yes, that is true; but, after all, the old matured Roots are the ones which support the trunk and keep it erect through all storms and tempests while the small ones are growing up."

Bristol, Vt., Apr. 13. A. E. MANUM.

[Friend M., a good many of us will thank you for the address of the firm that makes the little heater that does the work you mention, and takes only 35 lbs. of coal for 24 hours. Your building for the bees, if you let them fly out through the walls, is really a long house-apiary, and, if you remember, I have made extensive experiments in the way of warming a house-apiary; so you will excuse me if I am a little incredulous. Those that were warmed did not do as well as those that *warmed themselves*. So I rather decided that a good strong colony, with food enough so it could generate its own heat, was the cheapest way of doing it. Such a heater, however, with hot-water pipes, so as to give a regular, even temperature, may be quite in advance of the coal-oil stove used by myself and friend Doolittle.—Thanks for your kind words in regard to the Roots.]

NUBBINS.

PROF. COOK REVIEWS MATTERS.

I am glad that GLEANINGS is deaf to those criticisms that urge an editorial eye single to exclusive apicultural discussion. Without a doubt, the large majority of bee-keepers would vote to sustain your present course. To the few who criticise, you give more apiculture than they can get anywhere else for the money. The rest is clear gain; or, if chaff in their mind's eye, they can cast it to the winds and still be ahead. It is grand to have twice ten thousand ears semi-monthly. The man who would not be inspired by such an occasion to go beyond a narrow line of discourse would show a lack of appreciation of his rare opportunity, and the lack of aspiration, that I should not admire. To broaden out and say helpful things, and speak words that make the reader wiser and stronger and happier is good. The very success of your course bespeaks its wisdom; and so, I say, go on, though I am sure I do not need to say it. This nubbin grew out of an editorial sucker in a late bee-paper.

Chilled brood can no more give rise to foul brood than can la grippe to whooping-cough. La grippe might leave an enfeebled condition that could ill bear the shaking-up of whooping-cough, or *vice versa*. So, chilled brood may imply a weakened state that would find it impossible to resist an attack of foul-brood microbes. Chilled brood, then, may open the door for foul brood, but can never *cause* it.

The spring has opened very auspiciously. Three days of fine weather during soft-maple bloom, even more time given for the bees to extract sweets from hard maple, and now the early fruit-bloom is well out. Last night gave us a severe frost. The thermometer registered 18° F. We fear this may play havoc with the fruit crop as well as bloom, and we also dread its effect on the white clover, which is very abundant, and big with promise. Yet we hope some hidden power will make them proof against even such frigidity.

I fully believe that bees are very necessary to a full fruit crop. I hope all will notice, and see whether trees are in bloom only during a time when, from cold or storm, no bees are flying, and note the result. If no fruit sets, while on other trees which bloomed a little earlier or later, and which were freely visited by bees, a full crop of fruit is borne, we shall have an argument that will even reach our present legislators. Our intelligent fruit-men are already convinced. You speak of bees getting honey from peas not in bloom. The partridge pea, as stated in my book, yields much nectar from extra floral glands. That the cultivated pea may do the same is not strange. Such glands doubtless secrete nectar to attract bees and wasps, which serve the plants in frightening away insect pests, that might destroy the plants. This makes me bold to say that my book contains much that is found in no other one. It contains the latest science—all that is found in Cowan—

and now, all for a dollar. Should not all your many readers own and read this latest edition? Could it but be of many dollars' worth of advantage to them? If all the kernels on this last nubbin are blasted, throw it into that convenient compost, the editorial basket.

A. J. COOK.

Agricultural College, Mich., May 5.

[Friend C., I am exceedingly obliged to you for your kind words in your opening paragraph. Such a thought from any one would make me feel glad; but it comes to me with additional force because of the weight that attaches to any opinion you may see fit to give. I am glad, too, that you have given this suggestion in regard to foul brood. An unfavorable condition in the plant or animal invites not only contagion, but various insect and fungoid foes. How often, when we think something is new, somebody reminds us that it is already mentioned in Cook's Manual! And I do think that all bee-keepers who are not in possession of a copy might now, at least while the price is only a dollar, have one for a convenient handbook.]

ARE THE FOOT-NOTES SOMETIMES UNFAIR?

DR. MILLER REVIEWS THE MATTER.

Not long ago I found some fault with the foot-notes, saying they were, perhaps unconsciously, too much given to saying smooth things; and now friend Green (p. 267) says they are too much given to saying rough things. Perhaps the truth lies somewhere in the middle. At any rate, I should be very sorry to have any thing said that would make much change in the foot-notes. They are the best part of GLEANINGS. Right or wrong, the editor of a bee-journal is supposed to have more than the average amount of knowledge as to bee-lore, and it is always interesting and often instructive to have the views of more than one on any given subject.

Suppose two bee-keepers, Brown and White, are both men of judgment and experience, and Brown is talking about something that you are interested to learn, how natural it is, when he stops, for you to turn around and say, "White, what do you think about that?" So we like to turn to the editor, and say to him, "What do you think about that?" and we expect our answer in the foot-note. If Brown is talking about a thing over which he is somewhat enthusiastic, it is quite natural for him to paint it somewhat rose color, forgetting to mention objections, and then it is the part of a faithful editor to call attention to the other side. Again, an item is given that is of such value, if true, that the attention of every one should be particularly called to it, and the indorsement of the editor gives the reader more confidence in it. I do not say that the knowledge of the editor is perfect—the number of such people is limited. But he ought to be right generally, and he may suggest a view from another standpoint.

Let us examine a little. Look on page 282. There's an item recommending glue in whitewash for hives. Now, without the foot-note some one might have all his hives covered with a wash he would regret. He is at least put on his guard; and if some one has tried glue and finds it stands the rain, you may be sure he will be heard from.

On the same page is a recipe for labeling tin—a thing that has been sought for. Two men vouch for its success, and I have confidence in it; but that confidence is greatly heightened when the editor indorses it, not only because it is corroborative testimony, but because, from his experience in that direction, his testimony ought to be good. You see, friend Green, the foot-notes are not all fault-finding. On the same page is another that *is* fault-finding. A correspondent asks a trial of queen-excluding top-bars. The editor sits down on it very gently. I think if friend Green or I had been there we would have said, "That thing has been tried, and you'll only fool away time on it." The foot-note, gentle as it is, may save disappointment in more than one case.

No, friend Root, don't repress the foot-notes, whatever else you do. Rather than that I'll take back all I said, and allow you to swing your hat, and sing out "Hurrah for our side!" at every favorable report that comes in.

SHALL THE N. A. B. K. A. AND B. K. U. UNITE?

Friend France, p. 166, asks me to explain how the Union would be benefited by the union. His opposition to it, indorsed by E. R., makes me a little doubtful. Perhaps the disadvantages preponderate. I'll try to tell the advantages, and may not find them so many as I had supposed. The first one that suggests itself is the opportunity for an annual meeting. I know that friend France says the Union doesn't have to meet anywhere to do its business. But that is just because it can't very well do so, however much the advantage might be. At least once, I think, it has had a meeting, and that was at a meeting of the N. A. B. K. A. The business is done mainly by the manager, but he sometimes consults with the other officers, and I feel sure that he would be glad to do so oftener if it were not for the fact that all consultations must be by mail, without the opportunity of a personal meeting. In a late number of the *American Bee Journal* the question is raised (page 481) whether the Union can not do some work that the manger can not do without a change of its laws. The question as to the advisability or non-advisability of the particular case mentioned does not now concern us, but it is entirely in the range of possibility that some change or some action might be needed that would be the better for close personal discussion.

Then there is some advantage in the way of enthusiasm to be had from a personal meeting. I think that friend France will testify that the Union got a pretty good lift from the presence of the manager at Madison at the Wisconsin convention. If I am not mistaken, the members of the Union are much the same from year to year—that is, a man who joins once is likely to renew his membership the next year. Now, suppose that the two societies were united, how many new members would the Keokuk convention have brought into the Union? I don't know, but I think fifty would be a pretty safe guess. And each year the N. A. B. K. A., from its wandering character, might do the same. Don't you think that would be quite an object? Might it not be a benefit to the N. A. B. K. A. to consummate the union? It would certainly do something toward giving it stability of character, a thing it very much needs. At present there seems to be a union in so far that the reports of the Union are presented at the annual conventions of the N. A. B. K. A.

Haven't I shown at least *some* benefit to be had from the combine? Now please tell us what *harm* would come of it. C. C. MILLER.

Marengo, Ill.

[We try, friend M., to make our notes fair, but I fear that we do not always do it—not from a disposition to be unjust, but because of a lack of knowledge sometimes; for, as you say, editors are fallible. I am glad you have taken up the other side, particularly as the foot-notes you commend were by me. I won't get conceited about it, but try the more to make them free from criticism. I am now reading up the back volumes of the old bee-journals, in order that I may be posted in what is new and what is old, and what has been tested and found wanting, and what has been tested and found to be good. In regard to merging the Bee-keepers' Union into the N. A. B. K. A., I have to acknowledge that I am converted to your position; in fact, Mr. Newman says the Union is part and parcel of the N. A. B. K. A., so far as its protective care is concerned.] E. R. R.

THE HOME TALKS IN GLEANINGS.

ESPECIALLY THE ONE FOR APRIL 15.

Mr. A. I. Root:—Permit me to find a little fault with the Home talks in GLEANINGS. I have been a reader of your journal for several years, and have been an admirer of its moral tone and of the sermons; but through all there runs a vein of what I have often *heard* called "egotism." This seemed to mar the value of the otherwise excellent discourses; but true philanthropy seemed to be back of all this, so we did not care to complain. But after Mr. Braley complains so vigorously, you seem to get "riled," and say harsh things, or, rather, *allow others* to say them, and then you publish it with your approval. In this way you manage to say that Mr. B. is "another" (egotist), and that you suspect he doesn't know much, and you have lots of friends *any way*. Now, if this came from a man who swears, like ——— ——, for instance, it would not do much harm; but coming from a Christian *teacher*, it is highly pernicious. The apostle cautions us to avoid all appearance of evil, that the gospel be not spoken against; but you rail at Mr. B., and send it to *10,000* readers (if GLEANINGS is lent everywhere as it is here, there are nearer 30,000), so you can see how much harm it *may* do. In reality Mr. B. does not show egotism by his refusal to take a thing he *doesn't like;* and Mr. Woodbury is plainly wrong in his remarks.

You have no doubt read in Pilgrim's Progress of how Christian and Hopeful followed Flatterer in a path apparently straight at first, but turning by degrees till they traveled in the opposite direction. I do not say that your friends *mean* to flatter you; but the dangers that Bunyan pictured still exist.

Now, please do not think that this is written in a spirit of hostility, or is prompted by jealousy. We envy no man prosperity. After all, the question is not, "What are the motives of this?" but, "Is it true?" A SUBSCRIBER.

Permit me to thank you, my good friend, for your kindly and just criticism. You are right in the position you take, that friend Braley has not been fairly treated. The same is also true of that California association. Why, then, was it permitted to go into print unnoticed? Simply for the reason that I could not, in one paper, take up all these side issues. I started out with a text and with a particular point to make. The point was, that we should have more faith in the Scripture injunction to return *good for evil*, and that we should not be troubled when we are criticised or persecuted; and I certainly made a strong point, and a helpful one, for the letters I have received indicate clearly and unquestionably as much. Now, had I, at the same time, taken up this point you mention, it would have diverted the thought of my readers from the great moral I wished to make, and it would have weakened the effect of my talk. The kind letters I quoted were *simply* to show that I had *not* suffered in public opinion or public estimation by what friend Braley had said. I did not mean to carry the idea that the writers of these kind letters were entirely right. I knew they were prejudiced in *my* favor. I rather hoped the readers of GLEANINGS would recognize this without the necessity of my taking space to correct it. I told you, in that same paper, that one of my besetting sins *was* egotism before the grace of God toned down one of the great defects of my character. I well knew I was laying myself open to the charge you make when I published these kind letters; but how else could I show to the world, or to our boys and girls, that, if *their* hearts are right in the sight of God, they need not trouble themselves to fight back. The point was this: Do *good* to those that hate you, and at the same time fight the evil in your *own* heart, instead of fighting those who have persecuted or criticised you. I surely was not "riled," as you express it, my good friend; neither did I wish to call friend Braley an egotist. If it sounded so, it was a mistake on my part. I have all along had the kindliest feelings toward him. I *do* know it is *exceedingly* important that I, as a teacher, should be *very* careful; and I thank you for kindly reminding me of its great importance. There *was* a time when the flatterer might have turned me from duty; but I do not believe that flattery now can swerve me from the straight and narrow path very much. If it would, God knows I have enough praise to place me in danger. I have been praying all along, and I will pray still harder, that none of these things may move me from the work whereunto he has called me.

Here is another letter, something in the same line. This, also, comes from a church-member, as you will notice. It is simply an extract from a very kind letter like your own:

You will pardon me if I should act the critic awhile. I, too, am a member of the church; and while I admire the way you fight the Devil in your warfare against some of the evils in the world, I admire, also, the moral tone of GLEANINGS' make-up. But the Home Papers which you publish, I do not place a very high estimate upon. I verily believe that the publication of those Home talks has been very profitable to your business, and a source of revenue to you for many years, which no doubt you have enjoyed. Those simple talks have been the means of building up your immense business. I would not have you stop publishing them on my account, as some of the good brothers were afraid you might do, who so gallantly came to your aid with their sympathies. No: when a man has found a good advertising medium, as you have found in the Home Papers, why, it would be foolish to give them up. L. A. DOSCH.

Miamisburg, Ohio, May 9.

Dear friend D., I am well aware that the Home Papers *have* been a means of building up our business; but I assure you, from the bottom of my heart, that they were *never* written with this end in view. The result has only been *another* of the pleasant surprises I *tried* to tell you about in that Home Paper that has been criticised. You are right in your assertion that they have been profitable; but you are entirely wrong in your *conclusion* that they were written from a selfish motive. I am *not* working for money. In *one* sense I do not care particularly whether our business builds up or not. In fact, it *pains* me to see some departments enlarging. As an illustration: I feel troubled to see our advertising columns grow and expand when it is not perfectly *clear* to me that the good friends who patronize us will get their money back. If, however, the business can continue to increase and enlarge in such a way that *Christ Jesus* may *never* be crowded out of sight, and that his dear name may be *honored* and *glorified* at every *step*, then let it build; otherwise, may God forbid. A. I. R.

THE DUTY ON QUEENS.

PROF. COOK REVIEWS THE SITUATION.

This new tariff on imported queens is really quite a serious matter. The facts are just these: The McKinley bill places a tariff of 20 per cent on all imported animals. This, of course, includes queen-bees. There is, however, a clause exception from the provisions of the bill—animals imported strictly for breeding-purposes. This, of course, would also exclude queens, and exempt them from the duty. But there is a requirement that the importer shall have a certificate, establishing the fact that the animals are imported solely for purposes of breeding. Now, any of us who are acquainted with governmental affairs know that the amount of red tape used to keep out fraud is something enormous. No doubt this is all necessary. Thus our importers will not be prepared to show papers that will exempt the queens from the duty; and as the queens can not be left in the custom-office, all early importers will, per force, have to pay the duty. Now, I wish to suggest three practical points that bear on this matter. 1. Let every importer get at once, from the Treasury department, blanks and instructions so that he may, in all future importations, have the papers to show that his goods are exempt from duty, so that he may secure his queens from the custom-house without expense, at once.

2. I would suggest that the executive committee of the American Bee-keepers' Society, or the Bee-keepers' Union, take immediate steps to have the Secretary of the Treasury rule that queen-bees may be admitted free at once, as coming under the law, without any special certificate, in that they are *always* for purposes of breeding.

3. In case people have ordered queens of importers at advertised rates, I would suggest that each person pay this duty. It would be but little for each one, but would be very severe if the dealer had to bear it all. I suggest that each importer explain the matter to every purchaser, and I have no doubt that nine out of every ten will pay the additional amount required by this extra expense. I believe bee-keepers are just such men. I hope, Mr. Editor, you can add some word of advice to the above. I have several complaints—one very loud one—from importers. A. J. COOK.

Ag'l College, Mich., May 9.

[We have already notified our agent in New York to be prepared to pay duty on queens, and forward them at once. This duty is not so excessive but that we think we can pay it and still maintain our old prices. The Italian queen-breeders have perfected their methods of sending queens across the ocean to such an extent that there is not nearly the loss that there was formerly, when the old price of $6.00 for the best queens was established for the month of July. Last summer we reduced the price to $5.00, and contemplated reducing it again; but the duty will probably hold us as at $5.00 for the month of July. It might be that we shall be compelled to raise our prices, but we do not think we shall be under that necessity.

Since the above was written, the following letter, to Acting Secretary Willets, has been forwarded to Prof. Cook, who, in turn, sends the same to us:]

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY.
Washington, D. C., May 5, 189

The Honorable, The Secretary of Agriculture:

Sir:—I have the honor to acknowledge the receipt of your letter of the 22d ultimo, and, in reply, to say that, under the existing tariff act, I can perceive no way in which imported bees can be admitted free of duty when intended for breeding purposes, except upon production of the proofs prescribed by paragraph 482 of the "free list," with the character of which you are familiar. Bees, or other dutiable articles imported by mail from countries with which the United States has no parcel-post treaties, are liable to seizure as illegal importations; but, under the authority of remission conferred by law on the Secretary of the Treasury, collectors of customs may release the seizure on payment of duty and expense of seizure, when the duty is $25 or less, and where there is no proof of willful evasion of law or postal treaty. The provision for shipment of queen-bees by mail, contained in rule 100, page 798 of the Postoffice Guide, cited by you, is understood by this department to relate to the domestic and not to the foreign mails, inasmuch as, under the Postal Union Convention, the only dutiable articles which may be imported by mail are printed matter, commercial papers, and samples of merchandise. Respectfully yours,

CHARLES FOSTER,
Secretary.

[Prof. Cook adds:]

Friend Root:—This seems to give us but little hope. The thing to do now is to find out just what course to pursue to get relief from duty.
A. J. COOK.

[You, friend Cook, if we are not imposing on you too much, are just the man to secure that relief, as you have a friend in court in the personage of the Secretary of Agriculture, Edwin Willets.]

THE NEW WATER CURE.

SOME EXTRACTS FROM THE WATER-CURE MANUAL, PUBLISHED IN 1847 BY FOWLER & WELLS.

In addition to what we have already taken from this book, I have thought best to give also the following, from Chap. IV. The Water-cure Library comprises seven volumes. The extracts we make are from Vol. IV.

THE ENEMA, CLYSTER, INJECTION, OR LAVEMENT.

This very important part of the water cure is as old as the healing art itself; but in the endless complications of the remedial means of modern times, almost any irritating or disgusting fluid, other than pure water, is preferred. A variety of instruments for administering injections are now manufactured, varying in price from fifty cents to four or five dollars. The cheaper kinds, if well made and used with some degree of dexterity, answer a good purpose. Every person should have access to one; no lady's toilet is complete without it. Contrary to the common notion, a person, by the exercise of a little skill, can easily use this remedy without assistance. It is in no wise painful, but decidedly agreeable, and affords, in a variety of complaints, speedy and efficient relief. Thousands suffer incalculably from constipation year after year, when the use of this simple means would give the greatest relief, and thousands more are in the daily and constant habit of swallowing cathartic and aperient drugs, Brandreth's pills, castor oil, magnesia, blue pill, mercury, and so through the long chapter, that irritate and poison the delicate coats of the stomach, and exert their pernicious influence throughout the numberless lanes and alleys of the system, destroying the healthy tone of the tissues, deranging the nerves, and thus causing a state of things incomparably worse than the disease itself, and rendering even that more and more persistent.

Most persons may and should use this remedy cold. A beginning may be made with the water slightly warmed. In obstinate cases, lukewarm water effects the object quicker and with greater certainty than cold. But, invaluable and efficient as is this remedy, let no one persist in those habits of diet, such as tea and coffee drinking, the use of heating and stimulating condiments, greasy and concentrated forms of food, etc., that tend so certainly to constipation and irregularity of the bowels.

In all forms of looseness of the bowels, as diarrhea, dysentery, cholera morbus, cholera infantum, and the like, this remedy is most excellent. In many a sudden attack, injections sufficiently persevered in, will suffice quickly to correct the attack, and this when, in the ordinary treatment, a course of powerful drugging, would be deemed indispensable, that would result perhaps in death.

So also in constipation and obstructions of the bowels; when no powerful cathartics that any one dare venture to exhibit can be made to act, this simple remedy is effectual in bringing about the desirable object. In any of these cases, if there is debility, and especially if it be great, whether the patient be young or old, the water should be of a moderate temperature—not above that of the blood (98° F.) nor very much below that point. Even if there is high inflammation and much heat in the bowels, water at 90 or 95°, persevered in, will readily bring down the temperature of the parts to a natural state, as may be determined by placing the hand upon the abdomen. The patient's feelings of comfort as to warmth or cold are a good guide. With these precautions as to temperature, etc., the injections may be repeated for an hour, or even hours upon the stretch.

In attacks of colic, clysters are used much. In spasmodic colic, I believe, it will generally be found best to use them quite warm. In wind colic, the enema is highly useful. Vomiting as well, and some other means, as is shown elsewhere, should be brought to bear. Some cases are very obstinate, and require all the skill of the most experienced practitioner; yet I advise all persons to persevere; in bad cases you can not make matters worse, and will generally succeed if you do not falter by the way.

In fainting fits, and in hysterical symptoms, the injection is serviceable. If there is much debility, care must be taken that the water be not too cold; but generally the colder it is given, the better. In cases of cholera infantum, when the infant is already past recovery, I have known tepid injections, frequently repeated, give, apparently, much relief; and it affords satisfaction, when nothing more can be done, to be the means, in some degree, of smoothing the passage of these innocent sufferers to the tomb.

Injections to the urinary passages, and to the vagina and womb, are useful in all acute and chronic affections of these parts. The water should generally be used cold. Various instruments are constructed for these purposes. In piles and hemorrhoids, of whatever kind, injections are indicated Recent cases are often cured with wonderful rapidity; and, in any case, those who have been long troubled with these complaints (and it would seem that about one-half the number of adults who lead a sedentary life are thus troubled) will find that simple, pure water is incomparably better than any of the thousand-and-one nostrums so much in vogue at this day. In a majority of these old cases, however, no local application will accomplish much, alone. The local symptoms only indicate the diseased condition of the whole alimentary canal, as well as considerable derangement of every function of the whole system. Hence the treatment must be general, and often powerful and long continued; and it may appear singular that the disease may be made apparently worse by this treatment, before it can be cured. It likewise sometimes comes on as a crisis, where it never had existed previously. In all of these cases, cold injections are good.

We give also the following testimonials:

A BAD YEAR WITH THE BEES: THAT WATER CURE.

I have been unable to do any manual labor for nearly one year; and my bees, from 63 colonies, have dwindled until I am afraid that I shall not have 20 colonies left. Last spring my bees never looked more promising, and I fed them 300 lbs. of honey, hoping to reap a benefit; but, instead, I got no swarms and no honey; and being unable to earn any money, it left me in poor shape for the winter.

As my grandfather was brother to Dr. Shew's mother, I happen to *know* of many of his astonishing cures, and so I readily take to the new remedy. I am troubled a good deal like L., mentioned under "Throw Physic to the Dogs," in April 1st Gleanings, and I am positive that I am receiving benefit in many ways; and the strangest part of it is, I have been greatly troubled with catarrh for 18 or 20 months, but have been perfectly free from it since the first application of the new remedy. Our Methodist minister received one of Dr. Hall's books, complimentary, with the request to sign and return obligation, but he said he thought it his duty to pass it around among his friends; so you see we have the original, as well as your notes and suggestions. Isaac T. Gould.

Corunna, Shia Co., Mich.

[On receipt of the above we wrote to friend Gould, telling him that he must give us what facts he could in regard to Dr. Shew and his treatment. He accordingly sends us the following:]

FURTHER STATEMENTS IN THE WATER-CURE TREATMENT.

Dr. Joel Shew, originator and proprietor of the great water-cure establishment at Oyster Bay, near New York, was an invalid son of Godfrey I. and Betsey Shew, of Jefferson Co., N. Y. His mother was the sixth child of Abraham and Desire Beecher, distant kin of H. W. Beecher. Whether his ailments were the cause of his commencing the study of medicine and physics, I do not exactly remember; but as the usual prescriptions of medicine failed to have the desired effect with him, he went to Oyster Bay to try the effects of the sea-breeze and salt-water bathing. Thus from personal necessities he commenced the study and practice of a course of diet—bathing, exercise, and the use of external friction, which, from the good effects produced, helped to build up an establishment that, in a few years, numbered its patients by the thousand.

Dr. Shew was very methodical in his business, and wanted no half-way work in any of its operations. All baths, exercises, and friction, which were done with crash towels or flesh-brushes, had to be done thoroughly and with a vim. Hot water and friction were used for very weak or aged patients, and cold water and exercise for the young, who had plenty of nature's electricity. Graham and fruits, variously prepared, formed the basis of the diet of his patients, and he wanted them to use no highly seasoned nor rich greasy victuals of any kind.

A wet-sheet pack was his favorite remedy in nearly all acute diseases; and a shower or plunge bath, followed with friction and gymnastics, in chronic cases. In a wet-sheet pack, the patient was wrapped from head to feet in sheets wet with cold water, and then covered with flannel blankets until a reaction and sweat were produced. In any event, a health-glow and moisture had to be brought to the surface of the skin before the treatment was ended. He preferred rain water for all uses, and had cisterns especially filtered and cleansed for drinking-purposes. His cisterns and wells were all thoroughly ventilated, and he would not willingly use water from a well or cistern where ventilation was neglected.

He always varied his treatments with hot or cold water, both internally and externally, according to the requirements of the case in hand, and was always very particular about his after-treatments.

I have seen cases which had baffled the skill of physicians, and withstood years of pickling with drugs and medicines, without an improvement, and which seemed hopeless cases of disease, that, in the space of six or eight months of the genuine water-cure treatment, have been transformed into perfect specimens of bodily health and vigor. I do not remember the date of his death, but I think it was in the '60's.

Corunna, Mich., May 11. I. T. Gould.

WATER CURE WITH A VENGEANCE.

Friend Root:—In 1836 I was in St. Petersburg, Russia, where the water-cure was a craze. In the month of December, in zero weather, ice being from two to three feet thick, large holes were cut every morning in the bath-houses situated on the ice in the river Neva. Then we took a plunge for a minute or two, and wrapped ourselves in our furs. It was refreshing; and, what an appetite for breakfast! Then, again, in the summer we went into the country to an artesian well and there partook of inward cleansing. We always tried hard to see who could drink the most. We never stopped with less than ten or twelve glasses (holding about a pint). One day I beat the large crowd by drinking 14 glasses in two hours. In 1839 there was a similar hydropathic craze in Germany, but more moderate than in Russia; but yet I took many baths in winter in the river Spree. The water cure was recommended for rheumatism, fevers, etc. In regard to eating linseed, why, friend R., I am somewhat surprised. Flaxseed tea is quite a common thing in my native country (Russia). The seed is boiled for two or three hours, then strained; and sweetened, if for cold, with honey or sugar; then add ginger, nutmeg, cinnamon, or any other essence, to taste. It is excellent for colds, coughs, and dyspepsia. It will set the stomach right. Even for infants' ailments it beats many of the nostrums sold at high prices; and, when properly prepared, it is pleasant to take. Try it, but don't eat the raw seed, which is good enough for cattle; but even then the oil is better. P. C. Bluhm.

Smithville, Tenn., May 4.

"RENDER UNTO CÆSAR THE THINGS THAT ARE CÆSAR'S."

Do not be too hard on Dr. Hall. If he had not revived Joel Shew's recommendation, it might have lain dormant another quarter of a century as it has the past one. I have the book, and read it years ago; but it was laid away and almost forgotten, and I thank you and Dr. Hall for reviving it again. A revival is often very beneficial, sometimes, even in religious affairs. Thos. A. Maskell.

Harmersville, N. J., May 11.

[All right, friend M. I will try to have more charity. One summer, some years ago, I was complaining that my feet were so sore and tender that I could hardly stand it to walk around. A runner for some kind of goods happened to be in the store, and remarked as follows:

"Mr. Root, if you will wash your feet as often as you wash your hands and face, your troubles in that line will be ended."

I thanked him, and began straightway to wash my feet every night and morning; and I found it an excellent plan, during hot weather in summer, to go around on the lawn barefooted, while the grass was covered with dew. Now, this man did me a great favor. Perhaps it would not have been a bad investment if I had given him $4.00 for the information, and he might have called it a discovery of his.* Is not this a parallel case? and would it be right or Christianlike for somebody to charge $4.00 for a secret or discovery that consists simply in washing your feet as often as you wash your hands and face? I suppose the matter has been discussed enough already, only that Dr. Hall *is now* at this *very moment* taking money from people who do not read the papers, wherever he or his agents can hunt them up.]

THE WATER CURE FOR PAINS IN THE SIDE.

Thanks for your pamphlet. I have great faith in your remedy. If you will send some to my address I will see that they get to people I think they may benefit. A neighbor sent for me in great haste. One of the family was taken suddenly with what they thought was pleurisy, suffering great pains in side and bowels. I urged them to try hot-water enemas, with a little soda dissolved in it, using the common syringe. It brought entire relief in a very few minutes. I think pleurisy, inflammation of the bowels, and a great many other troubles, could be cured by using hot-water enemas, and hot-water compresses outwardly, covered with dry flannels. I know it will cure inflammation of the bowels every time if persevered in.

N. Royalton, O., Apr. 16. Mrs. O. M. Keyes.

THE NASAL DOUCHE—A CORRECTION.

Friend Root:—I see I got a bad mistake in "Water Cure for Nasal Catarrh," page 328. I said, "Breathe through the nose," when I should have said, through the mouth. Press the little nozzle against one nostril, and hold the palate of the mouth firmly against the roof, so the water can't go down the throat or into the mouth. Done thus, there is no danger of strangling. I am very sorry it got in wrong; for if any one tries it that way he is sure to get strangled. Put a teaspoonful of salt to a pint of warm water, and it will feel pleasant; but without the salt you can't stand it. You would think the top of your head was blown off.

Venice, Fla., May 1, 1891. J. H. Hill.

SIMPLICITY AND CHEAPNESS.

Accept thanks for the little book on water cure. You seem to be in some trouble about the stiff rubber piece at the end. I use a large goose-quill pushed down into the rubber hose. Push the quill entirely down, so the hose will cover it at the end, and sort o' pucker over it. The quill does not obstruct the flow of the water. For a nasal douche I use the same with a little cotton rolled round so as to plug up the nostril. Wm. Wason.

Rockdale, Texas, May 9.

WITHOUT MONEY AND WITHOUT PRICE.

A few days since, when I was in a little village I heard a lady, an acquaintance of mine, who has poor health, telling another afflicted sister of a wonderful cure for human ills. She dwelt largely upon its merits, and said she would give her friend the address; and if she would send $2.00 she could obtain full directions. The treatment was simple, but she did not feel at liberty to tell what it was. I interposed at this point, and asked if it was Hall's hot-water cure. The lady looked at me in amazement. I believe that for the moment she thought that I too was a disciple of Hall, and had fallen from grace, and was revealing secrets I had promised to keep. She did not answer. I asked her if she knew Mr. Root, of Medina, and if she read Gleanings. She knew neither one, strange to say. I then told them both how you were exposing the water secret, and the other lady went home well pleased in possession of both water cure and $2.00. Subscriber.

GOLDEN ITALIANS.

ARE THEY LESS HARDY THAN THE THREE-BANDED BEES?

In an editorial in Gleanings, April 15, you speak of the "yellow five-banded bees" dying in such a way that many people would infer that they were less hardy than the three-banded or leather-colored Italians. I have had five or six colonies with a strain of the "yellow five-banded bees," on trial the past three years, and during all this time they have been numbered among my very best colonies in regard to wintering and building up early in the spring. They are less inclined to rob, and are gentler than any three-banded Italian bees I ever saw. The past three seasons have been poor honey seasons, but they have done as well as any other bees I have—better than the Carniolans. If I remember aright, they are descended from a queen procured of Mr. G. M. Doolittle, and no

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*Wading through the *dewy grass* is a discovery of *mine*—a discovery in "*water cure*."

one questions the fact that his bees are good workers.

SLIDING ON HIVE-COVERS.

On page 303 Mr. E. France objects to "sliding" on hive-covers, on the ground that it rolls the bees up in bunches, and kills them. My experience has been, that, if the cover and top side of the honey-board are free of burr-combs, and the cover be held squarely down on the hive, there need be no bees killed; but if you have to raise the cover a trifle to let it pass over a bit of burr-comb, the bees will crawl under the cover on the ends and side of the hive, and then, if the cover be closed down, it can not fail of killing bees. ELMER HUTCHINSON.
Rogersville, Mich., April 20.

[I did not wish to convey the impression that all four and five banded bees were less hardy than the darker Italians, but that those *we* had were so. What you say regarding the sliding cover is correct, according to my experience. When we had burr-combs we scraped the cover and frames after the honey harvest, so as not to be bothered with them the rest of the year.]
E. R. R.

CADDICE-FLY LARVÆ.

"BOOKS IN RUNNING BROOKS."

Prof. A. J. Cook:—While out on a ramble today we sat down by a small creek to rest, and noticed something crawling about in the bottom of 2 to 4 inches of water, that looked like rotten twigs with the bark peeling off. On examination we found larvæ in them, and inclose some to you. Please tell us what they are, their habits, and how they live, through GLEANINGS or by letter, as you wish. GLEANINGS TYPOS.
Medina, O., April 26.

[Prof. Cook replies:]

In the early springtime—April and May—the rambler, whom love of nature causes to lie prone on some bank of brook or pool, and look at the thousand wonders that nature there reveals, will often see a strange twig-like or gravel-formed tube which will seem to move along of its own will. He is likely to conclude that inanimate things may move, unless, forsooth, he is more curious, when he will find a very animate cause of the motion. This is a worm-like larva, with six strong legs just back of the head, by use of which the insect pulls itself and its strange home along through the water on the bottom of the stream. The tube which surrounds this aquatic traveler, and which doutless preserves it from hungry fish and tadpoles, is made by the larva. These tubes are fashioned by gluing sticks and stones together. They are usually cylindrical, but they may be made of stones, and be more curious, as they are often the form of a snail-shell. Often silken threads help to hold the pebbles in place. Two hook-like legs at the tail end of the body serve to hold the insect in its tube, so it is very difficult for a fish to get the larva unless it is willing to take tube, web, and all. These larvæ are nearly transparent, so we can see the heart, along the back, nerve system along the under side, and the air-tubes along the sides. Thus these may be used to study the internal organism of the insect.

The mature insect of this larva is called the "caddice-fly." Its wings are thick and paper-like; and when the insect is at rest they are roof-like. The legs are rather short, and the antennæ are nearly as long as the body. Some are variegated, and are quite pretty. They are attracted by lights, and so they often come into our rooms. A. J. COOK.
Agricultural College, Mich., April 29.

CLOSED-END FRAMES.

INTERCHANGEABLE; NOT STUCK IMMOVABLY WITH PROPOLIS.

The first lot of bees I bought when I came here were in closed-end frames with an outer casing, leaving a two-inch space all around. After using such hives for a year I found there was no trouble with propolis, nor in interchanging the frames, and that they were almost as easily handled as the swinging frames; though, out of mere habit, I can find a queen a little quicker, I think, among the swinging frames; but the use of such frames for fifteen years might explain the difference. In the spring the colonies on closed-end frames were the strongest. The only objection I found was, that the air-space was a harbor for insects, and especially scorpions. As I would rather have bee-stings, ten to one, I discarded the closed-end-frame hive for one of my own make, a pet hive.

SNAKES.

GLEANINGS can not be too "snaky" for me. The professor has certainly given us a very valuable article on snakeship. The habits of such a dreaded enemy must be known in order to fight its terrible bite, and save those that would otherwise die every year from its effects. As to a snake swallowing its young at the approach of danger, there can be no doubt of it. The œsophagus has the power of expanding, affording the means of swallowing an animal much larger than the body of the snake. A snake will also swallow its young for the night, and, before being killed, in the dying act will give them up. After a protracted rain a rattler can't emit the rattling sound as usual, his rattles being too wet. In this section the ground-moccasin is to be the most dreaded, as it gives no warning note. J. B. LA MONTAGNE.
Winter Park, Fla., Apr. 22.

LADIES' CONVERSAZIONE.

THE FLAT COVER; "E. R. R." AND E. FRANCE BOTH RIGHT.

We have used flat covers in our apiaries for six years, and I think Mr. France and Mr. Ernest Root are both right about the method of putting them on. As our hives are in the spring, the sliding movement is seldom used. In place of that we rest one end of the cover on the hive, gently play the cover up and down, each time letting it come a little nearer the hive (giving the bees time to run out of danger, which they will do very quickly), until the cover rests firmly in place without killing a bee. Just as soon, however, as our hauling is done, and our hives are all in their proper places on their summer stands, we will hoe the top-bars of each hive clean. Then our covers can be put on with a sliding movement as well as when the hives are new. There is no difficulty in sliding the covers on the supers, for they are always clean.

If there are no burr-combs, and every thing clean, you can commence at one side and slide your cover clear across, the only difficulty being that, just as the opening is closed, if a bee is in the way it is likely to be cut in two. At that point, then, you must go a little carefully and let the bees have a chance to get out of the way.

Even if we found no difficulty in putting the covers on, I should want the top-bars hoed clean, for I do not believe we have so many burr-combs if the bars are clean to begin with. Two can do this work better than one, for you need both hands to use the hoe, and another person must keep a smoke constantly going over the surface to keep the bees down. Spread a cloth on the ground to catch the burr-combs as they drop from the hoe. It will save picking them up. All this is a good deal of trouble, and, if thick top-bars will do away with burr-combs, then I vote for thick top-bars.

If Mrs. Axtell will try wearing a sheepskin slipper or moccasin (such as men sometimes wear inside their rubber boots) inside her light rubber boots, I think she will find them heavy enough, and more comfortable than the heavier boys' boots would be. Also, I think she will find the cause of honey-dew on her plants either the aphis or scale louse. Either of these insects will cause it, sometimes in very large quantities. As the aphis is very easily detected, I should think it more likely the scale louse.

Many thanks to Miss Nellie Linswik for information in regard to gloves. I am sure your gloves, being white, will save you many stings. But, how about the propolis on the ends of your fingers? for I must confess I dislike the propolis on the ends of my fingers and under my nails fully as much as the stings. It is such a comfort to pull off my gloves and find my hands clean. I am now wearing a pair of sealskin gloves, such as Mr. Thomas wrote me about, and like them very much. I wish you would try a pair, Miss Nellie; I think you would like them. If those who wear gloves were generally agreed that white sealskin are the best, it might be a good plan for Mr. Root to keep them in stock.

I have also had a chance to test my new aprons, and at present I think they are grand. What I may think of them when the thermometer stands at 100°, I do not know yet. Mrs. Harrison, if you can endure them during June, July, and August, I believe you would like them during the early spring and fall.

I am very glad, Mr. Root, you have given us a ladies' department. I only hope the ladies will not be so hard worked through the summer that they will be too tired to write.

Marengo, Ill., April 25. Emma Wilson.

SHOES FOR LADY BEE-KEEPERS.

Reading over the articles on gloves and other suitable apparel for women in the apiary, I have noticed nothing regarding the shoes, which to me is an all-important matter; for unless my feet are dry and warm I get sick; and if my shoes are not easy and comfortable I am nervous and out of sorts every way.

For spring work, the shoe I prefer is just high enough to support the ankle; of light-weight leather, front lace, with common-sense heel. These shoes are on the market here—very neat and durable, too, for about $2.00; but on a wide last, E or E E. As I require a narrow shoe, I have to have mine made to order. One's feet do not tire so soon with the ankle supported, and these shoes are not so warm as the regular boot. For something to keep these from absorbing moisture when the ground is muddy or damp, I use boys' rubbers. These come in one size, and are more durable than are those made for women.

GLOVES.

We are now using men's gloves, of a thin leather that is almost white, and so cheap that they sell for about 40 cents a pair. We add a linen gauntlet with rubber in the top. We very much prefer to wear gloves among the bees. They not only protect from stings, but keep the hands soft, and in condition for needle work and very many things we women have to do aside from work in the apiary.

APRONS.

For these I bought five-cent shirting, and made by the pattern recommended by Miss Wilson. These will wear well, protect the dress, and not be so warm as ticking. An ulster, as recommended by Mrs. Stow, is an excellent dress for bee-work. It is loose and cool, and covers one from head to foot.

THE HAT.

I like one which I fashion out of tolerably coarse braid, into a shape similar to a "sundown." This is cool, and will protect the face and neck. We have tried broad-rimmed hats; but when we stoop over, or the sun is low, it is very apt to peep under and blister our skin, or make it so red as to be sore. We should get sunburnt too; and what woman, who has observed the aptitude of the opposite sex to admire beautiful women, wants to yield her charms, if she has any, but rather protect them?

We must have Gleanings; and as we can't express a "candid and outspoken opinion," finding fault, we send subscription. We are always profited by reading Gleanings, and we would have no part omitted. We are especially glad of the Home Talks, and of the recent addition of a Ladies' Department.

Mrs. Milton Cone.

Chillicothe, Mo., April 11.

BEE-APRONS FOR WOMEN—ANOTHER MATERIAL.

I see by Gleanings, Feb. 1, that Miss Wilson is at a loss to know of what material to make her aprons for the apiary. I am going to use blue denim (I believe that is the right name), such as men's overalls are made of, only I shall use thinner goods than are usually put into men's clothes. I use the thinner cloth because it is easier to wash, and is not so stiff and clumsy as the other. I know the honey does not soak through and soil my husband's clothes under his overalls, so I think the same goods will save my dress. Last season I wore calico until I became convinced that it was little better than nothing, as I tore one to pieces on an average of once a week, for our apiary is surrounded by sumac bushes and black-sage brush, and the swarms invariably took to the sumac for alighting-places. Now, there is nothing like brush for catching one's apron, and picking it full of holes. After the calico I used gingham, but that was but little better, so now I am going to make a raid on goods used for men's clothes, and see if I can get satisfaction out of that.

NO GLOVES RECOMMENDED.

I think if Miss Wilson will leave off her gloves entirely she will find that propolis has not so strong an affinity for her naked hands as it has for her gloves; and I am convinced that the bees have no such grudge to pay off on the bare hands as they have on hands in a glove. Last season was my second year with the bees, and I worked without gloves, receiving but few stings, perhaps half a dozen in all. The season previous I wore buckskin gloves and received as many as half a dozen stings in them in a day. The bees, although belonging to two different apiaries, were of the same kind of cross hybrids. There are lots of wild bees in the mountains back of us, and, strange to say, they are all hybrids, some of them showing two and three bands. I have found many a wild swarm here, but I have the first swarm yet to find whose workers do not show the yellow bands of the Italians, and yet there has been no imported queen brought here for years.

Mrs. Mattie A. Bonfoey.

South Riverside, Cal., Feb. 26.

THE ROSY HUES OF APICULTURE.

DR. MILLER THINKS WE PUT THAT SIDE TOO MUCH BEFORE THE PEOPLE.

Is there something inherent in the business of bee-keeping that makes it so common a means of misleading? Is any other business so generally painted in rosy hues? and is there any other business that leaves in its track so many wrecked hopes? Bee-keepers, as a class, are not a set of sharpers and cheats. Outside of the ministry it is hard to find a cleaner set of men. Why, then, is there so much misrepresentation? A great deal of it is no doubt due to thoughtlessness, some of it to ignorance, and perhaps most of it to the natural desire to tell as big a story as possible.

A noteworthy example is before my eyes—not so different from many others, but noteworthy on account of its medium, the *Ladies' Home Journal*. As is well known, this is a paper of immense influence—its editor, besides being one of the most brilliant of men, being one who shows in every number of the paper that he is sincerely desirous to do all in his power to advance the best interests of woman. With a circulation of 600,000, it is easy to believe that each number is read by two million women, for each paper is probably read by three or four women. Now let me give you the gist of an article on bee-keeping for women in the last *L. H. J.:*

To begin bee-keeping, buy two colonies in spring. Divide one on arrival, equally, putting one half in a new hive. "Later in the season, when the half-colonies have become whole colonies, they are divided again. Supposing that the other colony will cast a swarm, there will be six colonies in the fall with which to begin in the spring. The swarm cast by the standard colony may be divided, also, if desired, giving seven in all. Of course, the divided colonies will store no surplus honey—only honey for their own use. . . . . In the spring the six or seven colonies may be increased to 12 or 14, and that number will be enough to manage in the first year of actual work. . . . . In an ordinary season, a colony of bees, by the non-swarming, double-hive system, will produce not less than 50 pounds of honey, often 75 and 100 pounds. This honey, if properly marketed, will bring the producer 20 cents a pound. By the system referred to, one person, with occasional help, may attend to one hundred colonies if comb honey be the product."

Let us now see what may be reasonably expected from this. Here we are, a year from starting, with 12 or 14 colonies, each one to produce on the average *not less* than 50 pounds at 20 cents per pound, or $10 per colony—$120 to $140 from the whole. Pretty good for the second year. Third year gives $240 to $280 from 24 to 28 colonies. Fourth year $480 to $560 from 48 to 56 colonies. Guess we can give up teaching school now, and wear a little better dresses. Next year 96 to 112 colonies; but as 100 are enough for one person, we'll stop at that and have a clean $1000. Or we might do as the schoolteacher mentioned in the same article, and hire several women, thus going on to enough colonies to clear several thousands.

Is it at all unreasonable to suppose that, on seeing such a statement in a journal in which she has so much confidence, one woman in each thousand will be tempted to embark in the business? Set it at the half of that, and we shall find a thousand started by that one article. Need I say that, out of that number, an even thousand will be disappointed, some so bitterly that they will wish they had never seen that excellent paper, the *Ladies' Home Journal?*

Now, I know nothing of the writer, Julia Allyn. It is not necessary to suppose that there was any intention to deceive. All the same, the mischief is there. Not to say any thing about the instruction given, which no practical bee-keeper would be likely to suggest or follow, the chief mischief is in representing the business in such golden hues—*not less* than $10 per colony —that heads are turned; and later, hearts are— well, not broken, but somewhat damaged.

The practical question arises, "Are bee-keepers themselves at all responsible for the trouble?" To some extent, yes. In general conversation they are too apt to speak of their successes, and be silent as to their failures. The same is true as to their reports to the bee-journals. With no recognized intent to deceive, the deception is none the less there. The public is taught to believe that the chief bee-keeper in their neighborhood is coining money, when perhaps the poor fellow is skirmishing around to find some other work by which he can earn enough to buy his bee-supplies for the season.

Nor are our editors entirely guiltless of the rose-tinting business. Yes, I know the editors of GLEANINGS, as well as other bee-journals, publish bad as well as good reports, and really mean to be entirely fair; but, do they treat both kinds of reports alike? I may say, in passing, that misrepresentation in the bee-journals is by no means so mischievous as in other papers, for they are read by those who have already been smitten by the bee-fever. But, to return to the question whether there is no bias on the part of editors. Let us put the editors of GLEANINGS on the stand. Do they always make the same kind of comments on bad as on good reports? Looking through the last number of GLEANINGS I find only a single item bearing on the subject. On page 221, after friend Freeborn's recital of discouragements, I find, "We are glad to have you give us plain hard facts; *but*, even if true, bee culture does not differ very much from most other rural industries." Then follows a quarter of a column, enforcing and illustrating this. Now, to be entirely fair, if a report should come in from some one who had taken an enormous crop, we should find a foot-note saying, "We are very glad you have been so fortunate; *but*, even if true, bee culture does not differ very much from most other rural industries. Just as often we hear of enormous yields of strawberries, apples, potatoes, etc.," and then follow with details of a case where a man made at the rate of $2000 per acre from a small orchard of pear-trees. Let us see how it is. Opening to page 786 of last year, there is found a list of reports encouraging. A man from Utah sends a good report: "Well, friend B., that is pretty good for this season," etc. Another from Pennsylvania: "Well, friend E., that is a pretty good report." etc. Another from Missouri: "Why, friend T., you are an old wheel-horse," etc. In no case is there a *but*.

Now, friend Root, I am sure you don't mean to be unfair, and you didn't know you were leaning so much to one side, did you? Well, since you own up like a man, I may as well confess that the case is not so bad as I supposed, for I had to leaf over a good many pages to make my point, and I thought I had struck quite a bonanza when I found page 786.

Well, the moral of all this is: Let us all be careful, as friend Freeborn says, to report both sides faithfully, in all our writings and in all our talk. C. C. MILLER.

Marengo, Ill., March 24.

[Friend M., I have noticed in other periodicals these very same things in regard to bee culture; and especially have I noticed it in ladies' magazines. Now, although there is great truth in what you say, I fear you are, in some respects, leaning to the other side. This very thing was talked about at one of our conventions; and Prof. Cook said the story of what a woman *might* do was not so very much fiction after all; and he cited the case of a lady near Lansing who had done even better than the case in question, so that there is at least a shadow of truth in these statements. But the idea that *any* beginner may calculate on any such results is not only folly, but productive of much mischief. The reason why I have called attention to good reports of late is because we have had so many poor ones. All hands admit, I believe, through all the journals, that we have had a series of unfavorable seasons. Give bee culture its dues, but do not by any means overstate the mark. Right in this line there is something else I have thought of lately. When it begins to be known that various periodicals are paying for contributions in this field, they, like other fields, will begin to be overworked; and we must not blame the writers for paid articles if they do their very best in trying to get at something that will bring *pay;* and the general interest seems to be in accounts of *successes* rather than in accounts of *failures*. Look through all our farming and horticultural papers, especially those on small fruits, and see whether this is not the tendency; and at a time when there is so much about "farming does not pay," some of these articles sound a little bit ludicrous. Let us be cool and steady, and face our troubles with good sound common sense.]

SCRAPS ON BEE CULTURE, FROM AN ENGLISH BEE-KEEPER.

THE HOFFMAN FRAME A BEE-KILLER.

The discussion on the above, and the closed-end frame, have interested me much; so, having had some spare time during the last winter, I made frames of each, so as to be more able to judge of their appearance and apparent working capabilities. Five years ago, when commencing bee-keeping, I decided that the wide-end self-spacing Abbott frame was the one for me; but after a season or two of use I decided that I wanted something else, and made plain all-wood end frames, with ¾-inch ears, as used on Simplicity all-wood frames, and cut off the spacing-pieces from my patent Abbott frames; and, at the same time, I shortened the top-bar to 15 inches. I had four reasons for these alterations:

1. The 1½-inch ends of the frames were constantly crushing bees which were hidden underneath, when handled.

2. As the frames closed in the ends themselves, they were used hanging on the sides of an inner box in an incased hive, without any other arrangement for closing the space at the ends of the top-bars, as in the case where frames hang in a rabbet. These did well enough till I wanted to interchange them, when, owing to the varying thickness of the combs, I sometimes found it impossible to bring the ends of the frames together without crowding the combs, thus leaving a space for the bees (where wide enough) or the heat to escape at the ends of the top-bars.

3. The spacing-piece on the alternate sides of the ends of the top-bars was always catching, especially when putting in and out the extractor.

4. The length of the top-bar (17 inches, English standard) necessitated unnecessary width of the hive.

Now, as I understand the Hoffman frame there is not only the width of the end of the top-bar to increase the liability to crush bees, but there is the additional risk where the frames come together; and it thus seems to me, in the light of my individual experience, to be impossible to handle these frames without crushing bees. This, it seems to me, would be aggravated when you come to handle several *at once*, as then the operator could hardly fail to kill the bees in the rabbets, if not some of those on the ends of the frames where they come together.

Again, when using these frames for extracting it seems to me that they would be unhandy, as the projecting sides and ends would prevent the combs from lying flat against the wire basket, or necessitate some arrangement whereby the wire basket would fit *between* the ends. Perhaps spacing the frames 1⅜ inches from center to center may help to keep the bees from building their combs so irregular as to prevent the spacing ends in the Hoffman and closed-end frames from coming together.

KEEPING RECORD.

I was interested in the article by friend Hatch, under the above heading. I myself have used a couple of new clean bricks on each hive during the winter and spring, to prevent the roofs from being blown off, and they are good for the purpose, but are heavy to handle, and too much machinery, and are not used during the summer, as I don't care to handle heavy brick all day, and think that four on each hive would be unbearable. My hive-roofs are covered with sheet zinc, and during the early spring and summer of these last three years I have kept a record in shorthand on the roof of each stock, in leadpencil, as to condition of food and bees, so that I had only to look at the roof to see when it was last examined, and its condition. Where a hive requires attention I simply place one of the bricks leaning over the front. This draws attention, and a look at the notes tells what requires attending to.

WATERING BEES.

I have tried many devices for watering bees, and now find a piece of turf, as used in many parts of Great Britain and Ireland for firing, the best. I keep a number of these dried turfs, or peats, about 6 inches by about 12 or 14 long, floating in the water or lying at its edge. The turf imbibes the water, and so is always moist, and the bees are in no danger from drowning, and can easily suck up the moisture from the porous surface. Where this material can not be obtained I should think that rotten wood would answer the purpose.

Bees were working snowdrops for pollen yesterday, for the first time, and are carrying water daily. They have been breeding for some time, as I saw young bees in a hive of Carniolan hybrids about a fortnight ago. They are wintered on summer stands in single-walled hives, besides which some had an extra story on above the excluder containing combs, partly filled with honey. Here we have no way of keeping the honey in such combs from fermenting through damp, except by keeping them near a fire in the house. I am located on the borders of the Solway Firth, and have a number of Scotch hills, or fells, in full view, while due south we have Skiddaw and the Lake district, at a distance of about 24 miles.

J. STORMONTH, JR.

Kirkbride Silloth, Cumberland, Eng., Jan. 16.

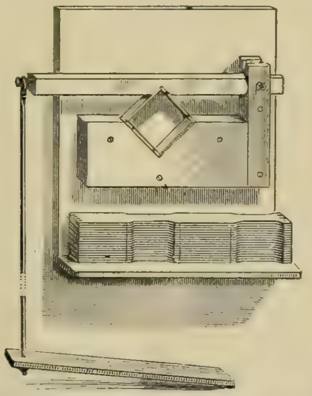
[I am glad of your experience on frames similar to the Hoffman, because there are surely some who will not like them. Mr. Hoffman himself uses hive-rabbets only ¼ inch wide and deep, and the projection on the end of the frames is only ½ inch long; so the liability of killing bees is not so great as where the rabbet is wider. We have contemplated narrowing the rabbet on the Dovetailed hive to ¼ inch, but do not dare to do so yet. If the Hoffman frame should be accepted, the change would be a necessity. The Hoffman frame will kill bees as you say, if not handled rightly. If it is a strong colony, and the bees cover the projections, the frames can be manipulated so as to slide the bees off. I grant, in the hands of some the frame would be a bad bee-killer. This is also true of the loose frame. The latter can be handled so as to roll the bees over—kill some—in lifting a frame hastily from the center of a populous colony without spacing the adjacent frames further apart. Loose frames will also kill bees if they are leaned carelessly against the hive. The Hoffman presents an advantage right here. See article and engravings on page 369. Our Langstroth-Hoffmans are so made that they will not catch in the extractor-baskets. Mr. Hoffman himself is an extracted-honey man, producing annually tons of honey. He says the projections do not interfere in the extractor.

It occurs to me, that sheet zinc would be rather expensive for hive-covers. As it would not have to be painted, perhaps in the long run it would be just as cheap as tin. Who else has tried them?] E. R. R.

A SECTION-FOLDER FOR 25 CENTS.

ALL ABOUT HOW TO MAKE ONE.

I know of no section-folder on the market which is not covered by a patent, preventing the bee-keeper from making them at home. The one described below was devised by myself and improved by my brother, and this makes its third season's use. It can be made by any intelligent bee-keeper at a cost of not more than 25 cents. It generally can be made from old material, and so really does not cost more than his time to make it. If made true and substantial it works just about to perfection. There is no patent on it. Perhaps it might be useful to some.



LOOFT'S HOME-MADE SECTION-FOLDER.

It is made as follows: Take a piece of two-inch plank of some kind of hard wood, about 6x8 in., and cut a right-angled notch in the middle of one side, so that the sides of the notch will be equal, and more than 4¼ inches long. Nail this solidly a little to one side of the middle of a piece of pine board a foot wide and about 18 inches long, nailing through the board into the plank. Next, take two pieces two inches square, one a foot or more long, and the other about nine inches long. Hinge these two pieces together in some way. Mine has a simple tongue-and-slit hinge. The short piece is nailed to the board along the end of the piece of plank, where there was room left for it, with the slit end up to receive the end of the long piece, which is to be used as a lever. Now cut a notch in the long piece, just like the one cut in the plank, about ¾ in. deep, and cut it where it will correspond exactly with the upper corner of a folded section placed in the big notch, when the lever is at right angles to the sides of the board. This constitutes the essential part of the machine. It is to be fastened to the wall or bench at a convenient height for work from a seat. Nail a small strip on the bottom end of the board for a little shelf on which to pile the unfolded sections. A small chain or rope, and a piece of board, make a treadle. Provide a spring of proper tension to lift the lever an inch or more above the horizontal, and it is ready for work. In bending the sections to be placed in the folder, do not bring the ends entirely together, but let them slip along the sides of the notch in the lever as it comes down.

The details, of course, are capable of many modifications. The principal object of this article is to present the main idea, leaving it to the bee-keeper to make such changes as will suit his taste and circumstances.

With this machine I can fold 15 sections per minute, and do *good* work. With it and a home-made Arthur C. Miller foundation-fastener, having a guide on it, the work of folding sections and putting foundation into them is truly delightful; besides, the work is of the very best quality.

CLIPPING QUEENS.

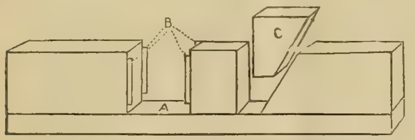
From replies given by correspondents in the *American Bee Journal* to a query as to clipping of queens' wings, I see that, in the main, they follow the directions given in the text-books—that of seizing the queen and lifting her from the comb. I used the same plan; but the trouble I had in following it induced me to seek another. Without a hand as steady as a vise, the ordeal is rather perilous for the queen. What bee-keeper has not caught a queen by the wings or legs, and had her get hold on his fingers with her other legs, and crawl and twist until he thinks wings or legs must come off, and then let her go to get a new hold? The queen also receives a terrible scare. Do not lift her from the comb. Catch the queen by the wing, and let her hold to the comb. Pull just hard enough to hold her, and you have the best chance in the world to use the scissors; or, if you have a sharp penknife, stretch her wing over the end of your finger, and give a little stroke with your knife, and she will walk away apparently without knowing what has happened. I can do it this way in half the time.

Cochranton, O., Apr. 5. C. G. Looft.

[You have given us a capital machine, and one that may be equal to the excellent Hubbard machine. Almost any one with a little practical ingenuity can construct one. We have used one on a similar principle to put large dovetailed boxes together, and know that a machine on that principle will work. Yours would have the advantage over the Hubbard machine, in that the operator could sit down to his work and do the squeezing with the foot. We will construct one for our own use, and report. The engraver, we notice, left off the spiral spring to raise the lever. Hello! here's another machine. It is, perhaps, simpler but not so good.]

BRESEE'S FOUR-PIECE-SECTION FORMER.

Friend Root:—I inclose within a drawing of an implement which I have made, and find very useful in putting four-piece dovetailed sections together. I made the machine three or four years ago, and would hardly know how to get along now without it in using that kind of section.



BREESE'S FOUR-PIECE-SECTION FOLDER.

To use, pick up a side-piece of a section with the left hand, and an end-piece with the right hand. Crowd the ends in place sufficient to hold; turn the side and put on another end-piece. Drop this into the machine with the side lying on the bed-piece *a*, and the ends in grooves *b*. Pick up another side-piece and place it on top of these, crowding the corners together with the hands. Bring the wedge *c* into place, and pound together.

Sometimes the side-piece of a section is thinner than the dovetail in the end-piece, and *vice versa:* consequently I cut out a little where the corners come, so as to make the shoulders come up snug together. STEPHEN BRESEE.

Sutton, P. Q., Feb. 2.

[Very good, friend B. If I understand correctly, you first strike the top of the section with your mallet, and then strike the wedge-shaped piece C with your mallet. This has the effect of driving on both the top and side of the section, without being obliged to turn it over.]

THAT JAPANESE BUCKWHEAT.

A COMPLAINT THAT THE FLOUR IS NOT GOOD.

Friend Root:—In an editorial on page 341 there is a slur on some one's cook, which, begging your pardon, does not sound very well. How is the poor man to get rid of his cook for three years, especially if she should happen to be his *wife?* I don't see how he can, unless he has money to get a divorce, and he can not have much if he has not sold that buckwheat, you know. Now, then, Mr. Editor, don't you think any one but the cook can be at fault about those pancakes? I tell you, it was the miller, for sure. My brother raised some Japanese buckwheat last year, and had part of it ground at the Brodhead mills. The miller said the kernel was so large that the mill would have to be set wider for it. That flour was lighter-colored than that from the common grain, but the miller said the hull was heavier than the silver hull, and did not yield as much flour to the bushel. They would give only 50 cts. for it, when they were paying 55 for the silverhull. Some of the same grain was taken to the Albany (Wis.) mills, and that flour was dark, as though it were mixed with fine bran. The bran itself was all broken, while the Brodhead bran was whole. The Albany miller said he never ground such buckwheat before, and never wanted to again. Two families who had the Albany flour complained of the cakes being so bitter they could not eat them. We used part of one of the same sacks, and thought it was good, so I think it must have been bitter tongues they had. Some said it was the best flour they ever saw. Japanese buckwheat is all right; but what is any one to do with it if the miller won't grind it or buy it? AL. HANN.

[My good friend, that was only a piece of pleasantry, about the cook. We should be very sorry indeed to think of casting a slur on any bee-keeper's wife, or, in fact, the wife of anybody else, for that matter. The facts you give us fix the blame, probably, just where it belongs. The millers are not used to having a buckwheat with grains so large, and their mills are not at present adapted to it. But they must move right along, and progress as the age progresses. The Japanese is surely all right. Instead of getting another cook, then, get another miller.]

THE PLANT-LOUSE ON THE WAX-PLANT.

HOW TO DESTROY IT.

Prof. Cook:—I send you a small box in the same mail with this. It contains a leaf of the hoya, or wax-plant, on which there is some sweet deposit; also a twig of the same plant with the little insects that produce this deposit. The plant has not been out of the office, where it runs up one window, for several years. The insects were all alive when placed in the bottle, but I fear they will be dead ere it reaches you. It was handed to me at Boonville by Capt. Tolioferro during our State convention of bee-keepers, and we were all curious and anxious to know whether the deposit is honey-dew, the name of the insect, or species, etc. Please examine, and report if already discussed in the journals. MRS. J. M. NULL.

Miami, Mo., Apr. 12.

[Prof. Cook replies:]

In response to the inquiry sent by Mrs. Null, let me say that the sweet substance on the leaves of the hoya, or wax-plant, is genuine honey-dew, and the insects sent in the accompanying bottle are genuine plant-lice. In these the nectaries—the black tubes which project from the back—are very long, as is also the spyglass-like ovipositor. The beak, or sucking-tube, is always long in plant-lice, and it is through this that the lice suck the sap and life from the plants. The sweet substance, or honey-dew, comes from the tubes or nectaries, and, in many cases, that from these plant-lice is wholesome, delicious, and no injury to honey, which it helps to produce.

The remedy for this plant-louse evil is the kerosene emulsion, which should be made as follows: Dissolve, in two quarts of water, one quart of soft soap or ¼ lb. of hard soap, by heating to the boiling-point, then add one pint of kerosene oil, and stir violently for from three to five minutes. This is best done by pumping the liquid into itself through a small nozzle, so that it shall be thoroughly agitated. This *mixes the oil permanently*, so that it *will never separate*, and can be diluted easily at pleasure by simply shaking or slightly stirring after adding the water to dilute it. I have often stated, that it is not necessary to use so much soft soap, but that it is better, as it insures a perfect emulsion even upon dilution, and the soap itself is an insecticide, and valuable, aside from its emulsifying powers. I have also stated, that, in using soft soap, a quart of water would do. I prefer, however, the two quarts, as the emulsion is more sure; and the thinner material permits more ready and more speedy dilution, especially in cold weather. I have always placed soft soap first, as most farmers have it, and convenience is very important in such matters. A farmer will make and use an article when all the ingredients are at hand, whereas he would not do so had he to go and purchase them for this express purpose. The agitation should be violent, but need not be long. We have formed a perfect emulsion in one minute, even with cold water. This emulsion should be diluted by adding an equal quantity of water. Shake well, and apply to the plant by the use of a syringe or force-pump, like the Lewis or Whitman. It kills all the lice, but does not injure the plants.

Many readers of GLEANINGS will be glad to know that this kerosene emulsion is a sure cure of cattle, horse, and hog lice, and also sheep-ticks. For the lice, scrub the animals with the emulsion diluted with one-half its bulk of waer. We use a brush, and do it thoroughly. The cost for a full-grown cow is not more than five cents and five minutes of time. It kills nits as well as lice, and seems to brighten the hair. I think the scrubbing with this soap solution is excellent for the skin, and thus we do more than kill the lice. For sheep we dip the animals in the emulsion, diluted with one-half its bulk of water. A. J. COOK.

Agricultural College, Mich.

FRAGMENTS.

DOOLITTLE ON APRIL 15TH GLEANINGS.

I see by Dr. Miller's Stray Straws in the April 15th GLEANINGS, that he is a sharp-eyed fellow or he would not have noticed that you were a little mixed in your reply to Mr. James on hatching chickens over hives of bees, he (James) desiring to know whether he could do this, while in reply you tell him that a bee-hive makes a good "hen's nest." But really, Dr. M., are you sure that an old hen is better for hatching chickens than a hive of bees? Just put your hand under the chaff or sawdust cushion over a good colony, some cold morning, and see if it would not be a good place for chickens to form inside of an egg-shell. But here comes a friend who throws a little light on the matter in a negative way. A letter, just at hand, speaks in surprise that Dr. M. should have any trouble in getting queen-cells "on a stick" just as he wants them, for he has no trouble; and then he goes on to say, that, after they are capped, he puts the cells in "the incubator where they hatch very *even* and perfectly," thus saving the bees any trouble in brooding them after they are capped. Now, if an incubator will hatch queens perfectly, why will not a hive of bees hatch hen's eggs more perfectly than "an old hen"?

NOT THE BEES NOR THE MICE.

In a late number of GLEANINGS a friend told of bees eating wheat during the winter, as there was bran on top of the wheat, under the hive of bees, which were set in the barrel of wheat. But on page 304 friend France spoils all of this pretty romance by telling us that it was not the bees at all, but "mice" that ate the wheat and left the bran there. Then the editor, after congratulating Bro. F. on his sharp observation and common sense, wonders if, "after the mice had worked in the wheat," the bees did not use the bran. Well, yes, about the same as the mice ate the wheat. I take it that neither the bees nor the mice had any thing to do with the wheat, only that, as the bees uncapped their honey in the hive above, the cappings of the honey, in old tough combs, fell down on the wheat, as we often see them in early spring on the bottom-boards, until these cappings covered the wheat, and were mistaken by our friends for bran, as the cappings of old combs, when gnawed off and licked dry by the bees, resemble bran very much. Sorry to spoil this nice little romantic story, but I believe the above the real facts in the case.

BEE-ESCAPES.

On page 306 I find friend Dibbern thinking that "Doolittle will not find much use for bee-escapes," on account of his wide-frame system. In this he is mistaken; for in the way I use the wide frames they can be handled the same, collectively, as any super, as will be seen by a late article of mine, while they have the advantage of being handled by the wide frame or the single section at the will of the operator. This is why I "froze" to them after testing nearly all the supers so far given to the public. I have had many letters of appreciation of said plan of using wide frames since I gave it in GLEANINGS. Last fall I used some of the new escapes, to my entire satisfaction, under these wide frames, and hives of honey that were tiered up during the summer; and I wish to go on record as saying that *the bee-escapes* are among the greatest inventions of the past. By them the raising of either comb or extracted honey is much simplified, and the hard labor materially lessened.

WAX SECRETION.

On page 319 Bro. France thinks the cause of bees secreting wax comes about by the bees having to hold honey in their honey-sacs. Exactly. That is as I have always argued. Now, if Bro. F. will closely watch a single-comb observatory hive, he will see that the old bees, on returning from the field, give their loads of honey to the young bees, and that these young bees hold these loads of honey till they are sufficiently evaporated to be deposited in the cells; hence it comes about that it is the *young bees*, very largely, which secrete wax, and that wax *must be* secreted to a greater or lesser extent, from the standpoint of Bro. F. and myself, whenever there is a flow of honey of any great amount. Prof. Cook might as well haul down his flag when such "weighty" men (avoirdupois) get after him.

OLD BEES SECRETING WAX.

I have read over and over again what friend France has to say on the same page about old bees secreting wax, and his proof of his assertion; and I am compelled to think there must be a mistake somewhere about that six-weeks-old swarm building comb. Time and time again have I proven that bees having a queen do not live over 45 days during the swarming season, and I am also fully as positive that no bees less than two days old ever go out with a swarm. Now, if there is no mistake about that six-weeks swarm, all the bees must have been dead that went out with the swarm one day after the young bees in the last hive began to hatch, which would have been the ruination of that colony, for the bees would have become so old and worn out, also so few in numbers, that no young bees would have hatched, unless the weather had kept warm enough night and day for a few days, so that the brood would have hatched of itself. If the advice of GLEANINGS was followed, and a frame or two of brood given to these swarms when they were hived (as I firmly believe an investigation of the case will reveal), then the whole thing would be reasonable; but then it would not prove the point friend F. wishes to make.

NAMELESS BEE-DISEASE.

On page 325 I see that Prof. Cook is surprised that Dr. Miller should question the curing of the nameless bee-disease by the removal of the queen. I know that it is generally supposed to cure the disease; but I also know that it does not always. Last year I purchased a queen from the South that gave bees with this disease in its worst form, the bees dying by hundreds every day, all bloated up so full that they could only roll over on their backs, kick a spell, and die. I changed the queen in August, so that, by August 25th, young bees were hatching plentifully from the new queen. But these bees took the disease, and continued to die, as did the others, all being dead and gone in February. This was my only loss in my new roofed bee-cellar. G. M. DOOLITTLE.

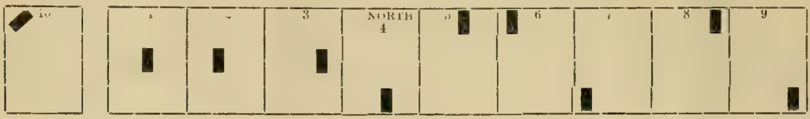
Borodino, N. Y.

[Very good, friend D. I am glad to see there are so many sharp ones scrutinizing all these statements and points that are made. I still think, however, that I have had bees, even during the honey season, live fully as long as friend France represents; at the same time, I agree with you that they usually wear themselves out, and are gone about the time you mention. This is why I have so strenuously urged that, in a queen-rearing apiary, every nucleus should have more or less brood all the while. Things go along ever so much better if there is never a time when unsealed brood can not be found in the nuclei. This gives all hands something to do, and at the same time it insures constant reinforcements of young bees.—If it should happen that neither the bees nor mice had any thing to do with the consumption of that wheat, I don't know but I shall feel a little bit disgusted. But, friend D., what about the roast chicken that has been given so many times, to keep the bees from starving?—I am glad to know you are succeeding with bee-escapes. When such "weighty" men, as you have it, make a thing a success, we can draw a breath of relief, and get over our anxiety. Ernest has just been putting the bee-escapes into the A B C book, and I was afraid he was giving them too much prominence.] A. I. R.

HIVE RECORDS.

THOSE HANDY SLATE TABLETS THE BEST OF ALL.

Friend Root:—Bricks, stones, pebbles, have all been suggested, most of which are cumbersome and unsightly. Were I to adopt any of these it would be the bricks, as recommended by friend Morrison, p. 262. One point claimed for the bricks is, that they hold down the covers during storms or high winds. Now, I do not care to handle the extra weight simply because I want the covers secure. I will admit, that covers do blow off occasionally, but I do not know that it ever did any serious damage to the colony, unless it should remain off for a considerable length of time in cold weather. At any rate, if I were very particular about having the covers secured on the hives I should certainly use a convenient hook or clamp of some kind, in preference to a weight of any kind. And now allow me to present my method. If it has ever been mentioned in GLEANINGS I do not remember of seeing it. Now, what do you suppose I am going to mention? Simply the little slates advertised by A. I. Root for this purpose, only I propose to use them as friend Morrison does his bricks, with the writing combined. So far I have not adopted any particular system, but intend to prepare one soon, and study it until I know it by heart. This spring, in going over our colonies, my brother and I just laid a slate in the center of the cover over colonies needing feed, so that, when we wished to feed, we could tell, by just glancing over the apiary, which colonies needed feed, and got into the habit of calling those "doubtful States," to use a political phrase. These slates being small we can make a greater combination than can be got by using bricks; and being black, or nearly so, when laid on a white hive-cover they can be plainly seen as far as necessary. Some may say these little slates will blow off. I would say, in reply, that I have known them to blow off the nail when hanging on the side or end of the hive, but never, to my knowledge, has one blown off the cover. Being so thin, when laid flat on the cover the wind can not get under them.



MILLER'S METHOD OF KEEPING RECORD.

Below are a few of the different positions that the slates may occupy, each position signifying a different meaning, as with the bricks.

Besides the above, more can be invented if necessary. For instance, laying one diagonally across the different corners, as in No. 10. It is useless for me to give the different meanings that the different positions signify, for every apiarist can manage this to suit himself. We might say, No. 1, weak, needs feed; No. 2, gave queen-cell; No. 3, hatched, etc.

When you see the slate, you know, without going to it, what condition the colony is in. Besides this, the slate contains necessary dates and writing. I always abbreviate as much as possible when writing on these little slates; as, S. Q. C., select queen-cell; fr., frame; int., introduced. On the left-hand upper corner write the year (1891); next the month and day, thus: 4-20 (April 20); and below, other writing.

When a colony is strong and in a normal condition, the slate hangs on a nail on the end or side of the hive. The one side of the slate contains the age of the queen, and when the swarm was hived, etc., if you wish to keep such data.

The best thing that I have found for writing on these slates is an ordinary leadpencil. This writing is not very plain to read; but if you get the light to fall on it just right you can read it easily. Only a few days ago I picked up one of the slates, and found some writing of early last June, and it was as plain, almost, as if it had been written only a day before, and looked as if it might last a year or two longer, and this had hung on the hive all winter, exposed to the elements. S. E. MILLER.

Bluffton, Mo., Apr. 20.

[We have used the slates as you speak of on hive-covers in different positions, to indicate certain information, for years. Our apiarist, Mr. Spafford, has a code of his own which he has used with considerable success. I am glad you brought the subject up, because I doubt whether I should have thought to mention it. We have used slate and *red* leadpencils for marking the slates. The former efface by rains too easily, and the latter are too indelible after the markings have been on for a few months. But a common leadpencil—that is something I had not thought of before. We will try it at once.] E. R. R.

SHADE FOR THE APIARY.

A SIDE-HILL APIARY.

I am glad some one has taken up the subject of shade in our apiaries. It is a subject on which a great deal has been said, first and last; but the only object in view seemed to be to shade the hives and bees, and not the keeper. I can see no season why, as long as we are going to shade the hives, we can not have such as will protect the apiarist also, and make it more comfortable and convenient for both. Of course, this is not always possible; but when one has a young orchard, or trees of any kind that are not too dense, and are somewhere near where we want our bees, I say, why not put them there? I like sunshine as well as anybody, but I think as Josh Billings did about the pudding. I can see no reason for a person working over colonies of bees with the scorching rays of the sun pouring down on him from morning till night, when, by a little forethought, it might be avoided. I have sometimes thought of moving my bees to some open plot and starting a vineyard apiary, with grapevines to shade the hives. I know such an apiary well kept would not only look nice, but would no doubt be for the very best welfare of the bees. But after working a few days in my brother's apiary, which is so situated as to get the full and direct rays of the sun, I was only too glad to get back under the sprawling limbs of the old harvest-apple trees, where I could work quite comfortably, even during very hot weather.

I send you a photograph of my apiary. It is situated on an east side-hill, under the early apple-trees, with a few sprawling peach-trees in front. These trees are kept pruned, and none of the limbs are ever allowed to grow so low as to prevent the keeper from standing or walking erect, without getting the hat jammed down over the eyes, as Dr. Miller did. The picture was taken in the fall, after the trees had shed their leaves, and I had begun putting on the packing-boxes, or outside protecting-shells. It was such a beautiful morning when the sun peeped up from its hiding-place, that I could not resist the temptation to run over to my neighbor, who is a photographer, and have him take a shot. You will see by the picture that I don't believe in bare ground for apiaries. Any thing but going out and finding some of our nice white hives all spattered with mud after a heavy rain.

CHESTER OLMSTEAD.

East Bloomfield, N. Y., Feb. 24.

C. OLMSTEAD'S SIDE-HILL APIARY.

[Fruit-trees not too dense make the best kind of shade, and I doubt whether you would find the grapevine as good. Somehow (they do with us) the vines get neglected, and then the shoots will stick out in the way, much to the discomfort of the apiarist. Your side-hill looks very pretty.] E. R. R.

* * *

DOOLITTLE'S QUEEN-CUPS A SUCCESS.

KEEPING A RECORD ON THE HIVE-COVERS.

It seems a little surprising that there are so many who fail to make a success of Doolittle's artificial cells. I tried them last season at different times and had scarcely any trouble with them; but having the young queen fertilized from the upper story of a hive, with a laying queen below, was not such smooth sailing. I doubled up two colonies, to try this plan, and arranged the top story for three queens. But one of them began laying. At another time this large double hive concluded, with so many queens and bees on hand, they might start a new colony (I keep all laying queens clipped), so they swarmed out, and one of the queens from the upper story led the swarm to the woods.

Does no one keep his record on the top of the hive-cover? I consider it just perfection. Early in the season I go to each hive and learn the condition by examining the brood-nest, queens, etc., and make a record something like this on top of the tin cover, with a pencil:

1891. April 15. Reared in season of 1890.
O. Q. clipped 1890. Old queen's wing clipped.

Later on I make a record of any thing of importance, such as swarming, disposal of the old queen, rearing young queen, supersedure, etc. This system is always handy to see at a glance, without disturbing the hive, yet it does not mar the beauty of the yard as bricks do, nor can the record be lost, as in the case of the careless moving of bricks or blocks on top of the hives by children or visitors. And another advantage is, it shows every record made through the season as well as the last examination. At the end of the season the apiarist may make a record of each hive, in a book kept for the purpose. S. S. Lawing.

Henderson, Mo., April 18.

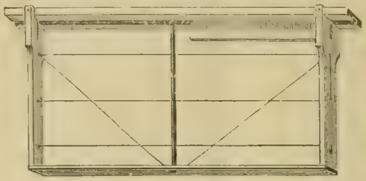
[Yes, you can keep records on hive-covers themselves; and when the covers are pretty well marked up it will be about time to paint them, and then you can put on new records. We have done this to some extent, but we like the slates spoken of by friend Miller on p. 422.] E. R. R.

EXTRA DEPTH OF TOP-BARS NO PREVENTION OF BURR-COMBS.

OLIVER FOSTER'S EXPERIENCE.

Three years ago, depending upon the testimony and advice of those who claimed to know, I put into my apiaries several thousand combs with top-bars $\frac{7}{8}$x$\frac{7}{8}$, the object being to diminish burr-combs by the extra depth of top-bars. Two years of practical work with these has fully demonstrated that at least twice as many burr-combs are deposited between them as there are between the old-style top-bars which are $\frac{5}{16}$x$\frac{7}{8}$.

Why should we expect any different result, since the vacuum to be plugged is $\frac{1}{2}$x$\frac{7}{8}$ between the former, whereas that between the latter is only $\frac{1}{2}$x$\frac{5}{16}$, the spacing in each case being 1$\frac{3}{8}$ from center to center? So I am satisfied that extra depth of top-bars is in no case a prevention of burr-combs between them. But if the spaces between them are too wide, it has an opposite effect, as it increases the unoccupied space, which is the chief cause of burr-combs. If extra depth ever has any effect in diminishing them in the bee-space *above* the bars, I have failed to notice it. But if they are ever deposited in a bee-space of proper dimensions, they do not originate there, but are simply a continuation of those extending from the combs below through the spaces between the top-bars. If we make these spaces and the bee-space above uniformly about $\frac{1}{4}$ inch, there will be no burr-combs deposited in either if the top-bars are only $\frac{5}{16}$ thick. The use of a thousand or more wide top-bars last season has settled me in this opinion, and I fail to find any report that conflicts with it. But we should not overlook the importance of having the spaces between the slats above the bee-space as narrow and as accurate as the others.



I now make my top-bars $\frac{5}{16}$x1$\frac{1}{16}$ throughout their whole length, and space them $\frac{11}{32}$ from center by using an end-bar that wide at the top, as shown by the accompanying cut. This form of frame is much cheaper than the Hoffman, and it is stronger, and I think equal to it in other respects. Oliver Foster.

Mt. Vernon, Ia., April 2.

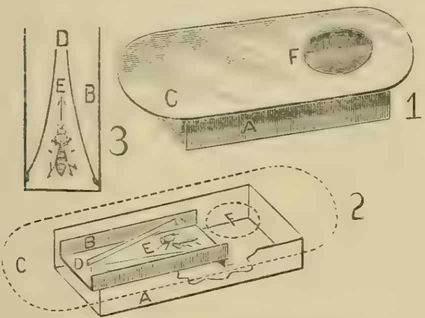
[Your testimony, friend Foster, it seems to me, does not conflict with the discussions on thin and thick top-bars that occurred a year and a half ago, when the discussion came up in our journal. It was not then agreed that a top-bar $\frac{7}{8}$ square would prevent burr-combs (see Gleanings, Nov. 15, 1889; also Jan. 1, 1890, page 20). Mr. Hall, and all the rest of those who spoke in such high praise of the new top-bars, recommended *extra width* in addition to extra thickness (see pages 20 and 131, 1890); besides that, a small bee-space and accurate spacing were later suggested as very important factors. You may remember, in answer to *your article* a year and a half ago, I told you that a top-bar $\frac{7}{8}$ square, alone, would not accomplish the desired result (see Gleanings, p. 126, 1890); and your experience above is just about what I should expect. Where did you see in the journals, three years ago, that top-bars $\frac{7}{8}$ inch square would prevent burr-combs? Three years ago was about a year and a half *before the discussion in* Gleanings *came up*. Extra width, careful spacing, and a small bee-space, will prevent burr-combs. You say, then, "What do you want an extra thickness for?" Because, on the Langstroth frames, a $\frac{5}{16}$ top-bar, a $\frac{3}{8}$—yes, even a $\frac{1}{2}$-inch top-bar—will sag; and just as soon as the top-bar sags, the bee-space above is changed, and away go the burr-combs again. Let me repeat again: The extra thickness is intended to prevent sagging, and so preserve the very important factor—bee-space. You say, use folded tin bars. In our apiary, on L. frames it does not accomplish the result. In order to keep from dropping out, the folded bar must be a little long. The result is, it has to crowd up the top-bar, or push down the bottom-bar a trifle. If the diagonal wires are drawn too tight, the trouble is aggravated. We have several thousand of such combs in our apiary, and there are very few of them indeed that have level top-bars. If you use a square frame, then a top-bar $\frac{3}{8}$ inch will probably answer; but even then, the folded tin bar is a thing the bees do not like. I have just been out in the apiary looking over some combs, and about half of them have the folded tin bar, naked on one side, and the cells adjacent to it are practically useless, either for honey or for brood. Now, why not have these cells taken up by a top-bar that won't sag, and one that won't have to have a folded tin bar to keep things straight? We have made our top-bars for loose frames, for a year and a half back, 1$\frac{1}{32}$ wide and $\frac{7}{8}$ thick. We do not make thick-top frames $\frac{7}{8}$ wide, because we know there would be burr-combs, sure. Our fixed frames have top-bars only $\frac{5}{8}$ thick and 1$\frac{1}{32}$

wide. Top-bars to the loose frames might be also ⅝ thick, but the lumber comes in such shape that it is about as cheap to make the extra ¼ inch as to make it only ⅝. After all, friend F., after taking all the facts together, you see we do not disagree unless it is in the use of the folded tin bar and the extra thickness. I notice that you have adopted the Hoffman widened end. We tried them last year, but have abandoned them and now use the top-bars widened at the ends, as well as the end-bar, as Hoffman has them. For the reasons of this, see page 368, May 1, current year; also page 489, 1890.] E. R. R.

THE PORTER SPRING BEE-ESCAPE.

THE BEST ONE YET DEVISED.

Before entering upon the subject proper of this article I wish to tender my thanks to the publishers of GLEANINGS for their kindness in furnishing proof of engravings for illustrating it. A good engraving often gives a clearer conception of the thing under consideration than a whole page of print; and in this case I think the GLEANINGS artists have succeeded so nicely that there is but little left for me to do more than give the dimensions of the different parts, together with a comparison of the practical workings of the Porter spring escape, with that of other escapes now in use.



THE PORTER SPRING BEE-ESCAPE.

Engraving No. 1 shows the escape complete, which, when placed in an escape-board, is ready for use. The bees enter the escape at F and pass out at D, as shown in cuts 2 and 3. The escape proper, as shown at A, is 3¼ inches long by 1⅛ wide and ½ inch deep. The top piece C is 4¼ in. long and 1¾ in. wide. The part B, containing the springs as shown in cut No. 2, is 1¾ in. long, 1 in. wide and ¼ in. deep. The object of this inner part, B, is to admit of a depression under F for the reception of dead bees that may chance to get into the escape. A dozen or twenty dead bees may get into the escape and not interfere with the bees out between the springs. To prepare the escape for use, make a plain board of ½-inch material, the size of the top of the hives on which it is to be used. Cleat the board at sides and ends so as to provide the necessary bee-space above or below the board. Bore two holes 3¼ in. apart from center to center, and near the center of the board, with a 1⅛-in. bit, and cut out the intervening wood; drop the escape into this opening and it is ready for use.

To adjust the escape-board on the hive, remove the hive-cover. A few puffs of smoke are necessary to prevent the bees from becoming angry. Raise the super, place the board on the hive, and set the super on the board, and return the hive-cover. All is done in less time than is required to write this sentence, yet this is all the time that is required by the bee-keeper to remove the bees from the super, as the bees pass out at their leisure, and the super is taken to the honey-house at any convenient time after the bees have deserted it.

During the season of 1890 I removed all my comb honey, about 2500 lbs., from the hives by the use of escapes, and experienced less inconvenience and annoyance by robbers or bees in my honey-house than I have frequently experienced in removing a couple of hundred pounds by the old method of smoking, shaking, and brushing of the bees from the supers.

I used four different patterns of escapes—the cone, trap-door, Porter spring, and Mr. Dibbern's latest pattern. Triple-cone escapes made of perforated tin work quite well at times. Occasionally quite a number of bees find their way back through the cones into the super.

The trap-door escape works nicely for a little while, but they are soon rendered useless on account of propolis.

Mr. Dibbern's new escape gave very poor results, as, in my first trial with it, there was very little decrease in the number of bees in a T super in 24 hours after adjusting the escape on the hive. My second trial was but little better, as only about half the bees were out of the super in 24 hours. In subsequent trials it worked some better, but not any better, if as well, as the cone escapes, as the bees are slower in passing out through the Dibbern. I very much dislike the Dibbern escape, for two reasons; *i. e.*, it is just as liable to clog up with dead bees as the cone escape is, and there is no way of clearing it out or knowing that it is or is not in working order without taking it apart.

The only objection I see so far to the Porter spring escape is, that it has no *automatic* principle that will extract the bees from the supers in a given time; and the bees of some colonies, under certain conditions of weather, are very slow to move out; but once they are out, they are certain to stay out.

While the bees have shown a disposition to propolize the perforations in the perforated tin cone escapes, and plaster over those made of wire cloth, and glue the doors of the trap-door escapes fast, they have put but very little propolis into the spring escapes, but not enough to interfere with the working of the springs in the least.

But little need be said concerning the utility of a practical bee-escape for removing comb honey from the hives. Any bee-keeper who has gone through the vexations of removing his comb honey from the hives during a honey dearth will agree with me that it is any thing but a pleasant task; while with a practical escape the vexations are all removed—no brushing, no shaking of bees, no robbing, and no bees in the honey-house. The escape-boards can be adjusted at any time of day, and is done so quickly that the robber-bees have no chance to get a start. The supers can be taken off at the bee-keeper's leisure after the bees have deserted them, which is usually from five to eight hours. Many of my supers were carried in early in the morning, without hat or veil, while the good wife was setting the breakfast.

Concerning the inventors and manufacturers, R. and E. C. Porter, of Lewistown, Ills., of the Porter spring escape, I will say, that, so far as I have been able to learn, they are the oldest practical bee-keepers in this part of Illinois. At present they do not keep a very large apiary, only some 60 or 80 colonies, on account of so many bees near them. In 1882 they obtained between 9000 and 10,000 lbs. of extracted honey from about 80 colonies. In 1886 they obtained

10,000 lbs. from about the same number of colonies.

Their escapes have been as thoroughly tested as one season's work can test them, and they are well enough pleased with them to manufacture several thousand of them, and I presume they will advertise and put them on the market at once. S. A. SHUCK.

Liverpool, Ill., April 9.

[Many thanks for your valuable article. We are all anxious to know what we may expect of the bee-escape; and, according to your experience, our hopes of its practical utility are not disappointed. If others shall have experience similar to yours, it does indeed promise to work a revolution in the methods of taking off honey, and we have already had some good reports. We, too, have been experimenting with different styles of bee-escapes; but none do the work so perfectly as the Porter, illustrated above. It would get *every bee* out of the upper story, even off combs of brood. With the Reese and Dibbern escapes, a few bees would be left, they having evidently found their way back; and once or twice we found them clogged with dead bees. We have just received a few samples of the Porter escape. They are beautifully made, and the price is moderate. If this escape shall do as well as it has done for you and ourselves, the two Porters deserve a vote of thanks for a perfect bee-escape, and the right of exclusive manufacture, whether they have a patent on the same or not. We presume a good many of them will be sold, and we should like to have reports of where thorough tests have been made. The propolizing feature of the Reese and Dibbern, as well as their occasional clogging with dead bees, is rather against them. The two brass springs at the point D, in the Porter, are so exceedingly sensitive, that, if a bee were to touch them with its manibles, I imagine they would tremble so that the little propolizer would become cross-eyed in trying to keep track of the oscillations, and give the matter up in disgust.] E. R. R.

A GROWL.

CHANGES; THE 8 OR 10 FRAME HIVE; FAST HIVE-BOTTOMS.

Mr. Root:—Why don't you have a growlers' column in GLEANINGS? I should delight to be a regular contributor to that department. To begin with, you have made a new hive. After telling us all these years that a ten-frame hive with beveled edge was essential to our health and happiness, you then turn and say, "We do not any more recommend the Simplicity." It reminds one of the words of Mr. Heddon, years ago: "The practical bee-keeper will, sooner or later, demand a readily movable hive, with fast bottom," and then he at once proceeds to invent and patent a new hive with loose bottom, and one that is about as movable as a barrel of sugar with the bottom fallen out. O consistency! But I am glad you are going to drop the Simplicity. I never liked it, and have been very glad to sell the few I bought of you (on your recommend) to my neighbors. But seriously, now, I think a man in your position should be very sure he has got something decidedly better when he makes such a change. With my limited experience I certainly do believe the old-style ten-frame Langstroth is a better, safer, and more economical hive than either the Simplicity or the Dovetailed.

But one thing that is not sufficiently considered by writers in the bee-papers is, that different locations and circumstances require different management. For instance, my hives nearly all stand fully exposed to the sun; and by having a division-board on the south side of my ten-frame two-story hives they require no shade-board; whereas, if I used your eight-frame hives, every one would require a shade-board. Then, again, I prefer to winter most of my bees out of doors; and if I used your eight-frame hive every one would require an outside case and cover. But the ten-frame hive, with a chaff division-board on each side, and a bushel of chaff above, makes a very safe winter hive. I have not lost a colony in those hives in five years, that was in a normal condition in the fall; and my bees have increased in that time from 20 to 100 colonies.

If the bees are wintered in a cellar, and are shaded by trees when out of the cellar, then an eight-frame hive would not be so bad; but I should prefer the old Langstroth, even then. In my location we are about as likely to have a yield of honey in September as any time. The nights are cool, and the bees will invariably be driven from the supers on your eight-frame hives, at that season of the year. I have had several of them in use for two years; and I know that, at that season, the bees will not finish up the outside sections, or store nearly as much honey in the supers as they will in the T supers on the old ten-frame Langstroth, with an inch space between the super and outside shell of the hive. If the honey were all gathered in June or July this last objection would not hold.

I must now tell you about another thing. You have talked to us about shoddy goods, while, at the same time, you were sending out thousands of brood-frames with a top-bar scarcely three-eighths of an inch in depth. Every novice who has used these frames has recognized their frailty from the first. To be sure, the lighter the top-bar the more necessary it was to buy your folded tin and wires to brace them up; and if we did not use the tin braces, it was very essential to use the honey-board.

The Northern Illinois convention is reported as deciding that a small bee-space between top-bars and sections is of more importance in preventing brace-combs than a thick top-bar. But, how are we to maintain the small bee-space with a top-bar that will invariably sag from ⅛ to a full half inch? Do you realize the injury you have done bee-keepers by sending out those weak frames? I suppose there are millions of them in use, and not one in ten but has sagged ⅛ inch or more. Can you suggest a remedy? A. C. BUGBEE.

Lochiel, Ind., Mar. 18.

[We used to have a "Growlery," but it died out for some reason—may be for want of patronage. Do not be in haste to accuse A. I. R. of inconsistency. It is the "boys" that have abandoned the Simplicity hive with its beveled edge, and who recommend, instead, the Dovetailed hive. If you will consult our price list you will see we make the Dovetailed hive both 8 and 10 frame size; and if you will study its construction you will discover that the bottom of either may be made permanently fast or not, as desired. But you say, "Don't like the flat cover, and want a portico." By consulting the price list again you will see you can have a gable cover and a portico to the Dovetailed hive. Now, please turn to "Frames." You will find we do not recommend top-bars less than ⅝ of an inch thick. Why? because less than that thickness is liable to result in sagging, and then the important thing—a bee-space that will prevent burr-combs—is changed. On this point you are just right. We must have top-bars thick enough to prevent sagging, and only a few nowadays want *thin* top-bars with the folded tin bars.

Say! in order to be consistent would you have us stick to old things and make no progress? Is it a weakness to change? If we could have adopted the present improved appliances years ago it would have been well. Why didn't the mower and reaper manufacturers adopt the self-binder in the first place, instead of coming to it gradually? Why do we give the *preference* to the 8-frame width? Because it is better adapted to most bee-keepers, and the majority demand it. *You* may be able to winter in a single-walled 10-frame hive with a dummy on each side, and chaff on top; but *all* bee-keepers can not. So they winter in the cellar, and hence do not want a hive larger than they need. You have given some good hints, but there are some things you have overlooked. Consult our 1891 catalogues.] E. R. R., or one of the 29-year-old "boys."

SOMETHING ON THE BRIGHT SIDE OF GREAT TRUSTS, COMPANIES, AND COMBINES.

THE HARTFORD STEAM-BOILER INSPECTION AND INSURANCE COMPANY, TO PREVENT EXPLOSIONS, ETC.

As we approach the twentieth century, every little while I am surprised and astonished at the great stride the world is making in being *helpful* to one another. A few years ago our great shops and factories were shut up from visitors, and a great many of them are now. But I think the matter is changing. If the demands of a certain business required something that the proprietor knew nothing about, he might visit the large manufacturing establishments in vain. He could not get the information he desired. We now have experts in steam-engineering, in electric lighting, in erecting waterworks, and, in short, in every line. Experts go from place to place, and teach all that is to be known about these new things. Of course, they get their pay for it—that is, they usually do sooner or later. But even if they do, I think it is just wonderful the way in which the world is getting to be helpful. Our conventions are a tremendous stride in this line. Horticulturists meet in convention, and spend valuable time in teaching green hands free of charge, all that is to be known about their business, and so in almost all other departments. The man who says he knows something valuable, but will not tell it unless they raise a purse of $50.00 for him, is away in the background. At the present time he could hardly get an audience of one. Now, these teachers are sometimes keen for business, and often work hard for trade; but if they tell the truth and furnish good goods, I think they are public benefactors. In our business we are continually extending our line of steam-power. Two or three years ago I said to our boys, "Oh I just wish we could have the advice of some man who knows all about engines and boilers, and shafting and hangers, through all the different factories all over our land! I wish I knew how the big establishments manage all these problems."

Well, it was not very long afterward before God sent just such a man to look over our establishment. You may think my expression, "God sent him," a little off; but I believe that is the right way to put it. This man who came to us had been visiting pretty much all the steam-plants in this and other States. He knew exactly how every manufacturing establishment solved certain problems. He told us how tall a chimney we needed, and how large inside. He told us all about the water we used in our boilers—how to prevent scale. He knew all about flues and flue-cleaners. He had been inside of hundreds of boilers after they had been used a term of years. He knew exactly when a boiler is unsafe. In fact, he was the inspector for an insurance company who make it a business of insuring boilers against explosion. When he said their company wanted one hundred dollars to look our plant all over three times a year, and *guarantee us* against loss from explosion *for three years*, I handed him the money very quick, and just laughed to think that I had found somebody who could do what I wanted, and do it so cheaply. When we got ready to build our great smoke-stack, 90 feet high and 8 feet square at the base, they sent us a beautiful mechanical drawing so that an ordinary mason put up, without any trouble whatever, a great shaft of brick that is not only a blessing to the *engineer*, but an ornament to this part of the town. The drawings and specifications were sent *free of charge*.

Now, all of these men I have been mentioning might be criticised in the same way our millionaires and our trusts and combines have been; but by taking the view of it I have been giving you, it is quite a different matter. You know, of course, I do not believe much in book-agents and street-peddlers; but when a man comes as a representative of a great institution for the relief and safety of humanity, I am ready to welcome him with extended hand, and to thank God for sending him. A. I. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE WAX-SECRETION QUESTION; ANOTHER THEORY.

GLEANINGS for April 15 was a feast to me. I have been interested in the secretion of wax for over two years; and as the subject is being discussed now, I will set forth my theory; thinking probably all the big guns are through, and won't indulge in a rehash, I shall be safe in setting forth such an absurdity. Vegetable wax is naturally produced by a flow of sap or water through some broken or natural tissue of the structure of the plant. Air absorbs the moisture, and leaves the crystallized production. Bees gather from blossoms, nectar diluted with water; carry it into the hive, and, if they have no empty cells, they retain the same by forcing the water through the wax-cells, it being thus evaporated by the heat of the bees, leaving a residue, or scale, of wax. When wax is not needed it is removed before the scales are crystallized, thereby giving the bee a chance to continue field labor; also young bees can perform this duty before they are able to go to the field. In this way bees produce honey from nectar, and not merely by evaporating the water by a current of warm air being forced through the hive, on the water-cure theory that air circulation is to evaporate water from the wax. Nectar gathered during a dearth has but little water, and will produce but little wax. If bees need wax and have honey, I think they can redissolve it and produce some wax.

Humboldt, Neb. HENRY PATTERSON.

THE VALUE OF AN ANEROID BAROMETER TO A BEE-KEEPER.

I notice what is said on page 298, GLEANINGS, in regard to your aneroid barometer. I wish to ask if that is what I want, to foretell the weather in going to my apiary five miles from

home. Will it indicate rain accurately twelve or more hours ahead? H. P. Langdon.
East Constable, N. Y., April 23.

[If you understand how to read an aneroid barometer, it will generally give you pretty accurate weather prognostications, several hours in advance, but not always. We depend on them a good deal at the Home of the Honey-bees. So much faith have we in them that we once started out to an out-apiary in the rain, because the barometer said it would clear up, although it *looked* as if it would rain all day. It cleared up nice about the time we arrived at the yard. If the barometer indicates rain we do not go out to the out-apiary. To make a barometer really helpful, however, one must study it and watch it closely; and he must bear in mind, too, that the barometer does not always tell *when* the change of weather will come about. One Sunday morning Mrs. Root wanted to know whether it would be safe to go to church without rubbers, waterproofs, umbrellas, etc. I told her I felt sure that none would be needed, for the barometer was rising rapidly. But, contrary to my prediction, we had little dashes of rain on the way to church, and during church time. In the afternoon the clouds went away entirely. On the other hand, sometimes when I feel sure a storm of some kind is coming, it all goes off in a blow, or, may be, just a little rain; but on the whole, the barometer is worth to me many dollars every season in deciding what to do, and what orders to give the workmen. Before the rain lets up I often direct them to harness the horses and get all the tools in readiness, and make preparations for a day's work out of doors. About the time they get under way we are almost sure to find the barometer was right, even though old weather-prophets saw nothing to indicate the clearing-up.]

VITALITY OF FIVE-BANDED BEES.

On page 340 you say that your yellow five-banded bees were the first to be numbered among your winter loss. Now, this is according to my observation with a colony of hybrids to which I gave a dollar queen the first of last November. The queen laid but few eggs, and all of the banded hybrids disappeared before the first of March, while there are plenty of the black hybrids yet. Does this not prove that the black bees are hardier and longer-lived? I suspect that another reason why you lost so many bees was selling off too many young bees; and, by having so many old ones to commence the winter with, they soon died and left your bees too weak, and they chilled, even in the cellar. Out of 63 colonies I did not lose one, and I wintered them on their summer stands. Prospects are good at present.
Franklin Garnes.
Kenna, W. Va., Apr. 27.

[Yes, it was the selling-off of so many young bees that helped to make up the loss; but we have sold off as much other seasons and had practically no loss. We lost no colonies in the cellar except three weak ones—one of them very weak.]

HOW AND BY WHOM RAMBLER'S SKETCHES ARE MADE.

Will you kindly tell us in Gleanings how those small illustrations in Rambler's articles are gotten up? Does he sketch them with a pencil first, and send the sketches to you to be engraved? I am sure it will interest a large number of readers to know all about it. Our bees wintered well. I lost 3 out of 83, and those starved. The rest are strong, and are now just booming. Young bees are hatching in some hives, and much pollen is coming in. I expect swarms before May 28. Harry Lathrop.
Browntown, Wis., April 27.

[Rambler sends us rough sketches or photographs, which we send to our special artist, R. V. Murray, of the firm of Murray & Heiss, of Cleveland. Mr. Murray, from these, makes new pen-sketches that are suitable and fit for reproduction on the printed page. These pen-sketches are then zinc etched, and forwarded to us. Mr. R. V. Murray is a bee-keeper; and as he has Rambler's manuscripts to read, he is eminently fitted to appreciate many of the ludicrous situations. Rambler and Murray together make a *whole team*. Murray & Heiss do all our wood-cutting, and for bee-work they have no equal.]

HOW TO MAKE A FEEDER-FLOAT.

The ladies' department makes Gleanings complete, and all we can ask for. Mrs. Axtell and yourself have decided on the feeder most suitable for everybody; but I made a cross of thin slats, ¼ by 1 inch, the length of the diameter of the pan feeder to be used, and drove two tacks into the center, thus +. Drop it on the syrup. In feeding a whole month, forty colonies, not a single bee drowned; and the bees suck the boards dry, so there is no wasting, and they can be put away in the pans.
Pittsburg, Tex., Apr. 22. Chas. Dorfman.

SPACING LOOSE FRAMES WITH PENCIL-MARKS.

Friend Root:—At the bottom of Dr. Miller's article on page 211 he speaks of imperfect spacing of loose frames, "even after spending much time on it." Some five years ago I conceived the idea of spacing by pencil-marks across the edge of the hive, just above the frame-rabbet, said pencil-marks to coincide with the centers of the frames. I still use this method, and can space the frames quickly and accurately thereby. E. H. Whitaker.
La Salle, Ill., Mar. 23.

HONEY FROM THE EGYPTIAN ONION.

Twenty-five years ago, in N. W. Missouri I had Egyptian onions that bloomed and bore seed. The bees worked on them more than on any thing else I ever saw. M. S. Klum.
Jacksboro, Tex., Jan. 28.

[You have given us two valuable facts, friend K.: First, that the Egyptian onions were known 25 years ago; second, that they yield honey largely when raised on a large scale. I believe they always have more or less blossoms mixed in among the tops or sets. During this present season we have finer and larger Egyptian onions than we ever raised before; and although people are clamoring for them, there is such a demand for the tops we do not dare to sell them now for bunch onions and thus cut off our chances for a crop of sets.]

PACKING-CASES A SUCCESS.

I see you wish to learn more of packing-cases for wintering (page 159, Gleanings). I have used such cases for six winters. They are the Heddon style (see page 695, 1885), and I don't care for any thing better. Asher M. Coe.
Coe Ridge, O., March 6.

THE UNPLEASANTNESS OF RUBBER GLOVES; HOW TO DISPENSE WITH GLOVES OF ALL KINDS ENTIRELY.

Seeing Mrs. Harrison's article on gloves, I concluded to venture a few words. When I first commenced keeping bees I bought a pair of black rubber gloves; but I soon discarded them, from the fact that the bees would sting the gloves and stick fast, and sometimes succeed in making me feel it a little; and, when drawn off, my hands would look like cooked pigs' feet; and, if magnified to the size of our earth, they would appear to be covered with mountains higher than the Alps. If you want to get stung on one of you fingers, just tie it up in a rag. That is my experience when I have a sore finger. I work with my bees with bare arms, bare hands, bare face, and no protection of any kind, and seldom get stung; and if every person would keep pure, gentle bees (no hybrids), and study the countenance and movements of the bees, and their nature, they (in my opinion) could do the same.

Oxford, O., March 11. D. A. McCord.

THE HAYES FOUNDATION-FASTENER.

I was very much pleased to receive April 1st Gleanings, and see the fine illustration of the foundation-fastener; and I was greatly surprised that you gave it such an amount of free advertising in your foot-notes. But I was astonished when I received your postal of the 7th inst., stating that you had credited my account $5.00 by article in April 1st Gleanings. I can't understand it. The Gleanings article placed me greatly in *your* debt; and if you had balanced my account I should have considered it just and right. Mell R. Hayes.

Washington, Kan., Apr. 16.

[When an article or machine is so manifestly good as yours, it is a pleasure to give it a good notice. Our girls scolded considerably when one of the packers proposed to take the only one we had for an order. They hardly knew how to get along without it, and so we had to make them a new one.]

STEALING HONYE.

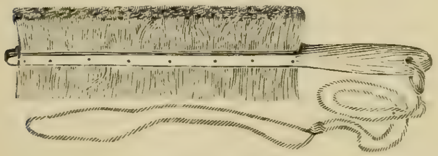
My health has been bad for several years past, and money is hard to get; but I can not have Gleanings stop. I send you a clipping taken from one of our daily papers. In addition to the honey taken, I lost 6 fine queens.

> Last Friday night, during the heavy rain storm, same one with a great amount of courage opened ten hives of bees in Mr. Oscar Banks' apiary, and stole about 200 pounds of honey, and left the frames and bees scattered all over the apiary.

Charlotte, N. C., May 1. O. Banks.

A BEE-BRUSH, AND A GOOD ONE.

Excuse me for making you a present of a bee-brush. I wish you to give it to the readers of Gleanings. I used one last season. I think it good enough for the World's Fair. I gave a friend one last spring, and he also reports it the best he ever saw or used. I have improved it by putting the string on to tie around the waist, and then it is always at hand. It can be made of any rope untwined.



SAYAR'S BEE-BRUSH.

Grafton, Wis. Seth Sayar.

[I believe your brush is a good thing. In talking with one of those extensive York State extracted-honey producers, W. L. Coggshall, of West Groton, he said he could not tolerate a little yucca brush, nor yet the Davis. "We want something," said he, "that will brush the bees off a comb with one stroke, or practically amounting to that. Those little toy yucca brushes won't do." Your brush is long enough to take the bees off with one stroke.] E. R. R.

BUZZ-SAWS, ETC.—A CAUTION.

If you find any errors, please correct them, for I am laboring under considerable disadvantage in writing, because of a sad accident that befell me one day last week. I have a Barnes saw; and while showing one of the boys how to cut a certain board, the festive saw waltzed into my right thumb, and I compromised by leaving half of the first joint. I have come to the conclusion that a buzz-saw is a dangerous institution, even without pulley, crank, or treadle. In the last number of Gleanings you give some plain talk about that supremely cranky and government-mule-cheeky Dr. Hall. The very idea of claiming originality on his part is certainly somewhat absurd and ridiculous, when, to my certain knowledge, it has been in use by the old botanic and hydropathic physicians for more than 50 years. Humbuggery and medical frauds have wonderful cheek and bilious secretions. Alpheus Dove.

Brookville, Ohio, March 5.

WIRE-CLOTH BOTTOMS FOR HIVES IN THE CELLAR, FATAL TO BEES.

In the fall, winter, and summer of 1887 and '88 I was working in the apiary of N. H. Putnam, River Falls, Wis. He had been reading a good deal, I suppose, about large spaces under brood-frames, in wintering bees in the cellar; at any rate, he conceived a plan which he thought would work to perfection. He had me nail together the side and end pieces of a Simplicity hive-cover, and then tack window-screen on top of the frame instead of the cover-boards. These were taken into the cellar, and turned upside down. The hives were brought in, the bottom-boards removed and set on these frames, and fastened there. Twelve swarms in Simplicity hives were fixed this way. There were about 70 swarms put into the cellar that fall. When taken out in the spring, those that were not wired were all right, except one swarm. The twelve with screens fastened underneath were all dead. Upon examination we found that dead bees had dropped down on the screen, covered it over, and molded. The result was, the bees were smothered to death. The cellar was quite damp, so that the mold filled up the spaces between the dead bees.

Fred A. Davis.

West Superior, Wis., Apr. 4.

A COLONY IN THE OPEN AIR.

I sent to you a year ago and got a catalogue of bee-fixtures, and a copy of Gleanings; and I saw in the latter where, if a person saw a colony of bees in the open air, he was asked to write and let you know. I saw a colony of bees on a corner of a rail fence, and they had five combs—three large ones and two small ones—a small one on both sides, as nearly as we could get at it. There was about 15 lbs. of honey and 3 of wax. William Haviland.

Laingsburg, Mich., Apr. 8.

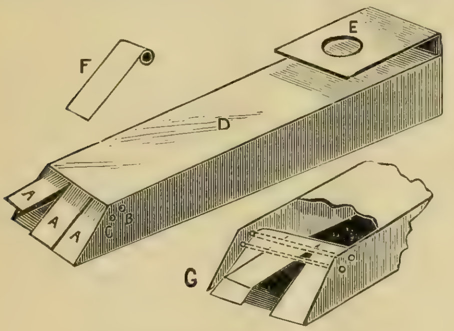
IS IT THE NAMELESS BEE-DISEASE OR SOMETHING ELSE?

With much interest I have read the articles written on the nameless bee-disease by our best writers and apiarists, its cause and its cure. Now, I wish to ask whether any one ever saw these small brown shiny bees in the spring. If so, they are an exception and not the rule. I never saw this disease (as almost every one calls it) appear until we had had extremely hot weather; and if we have only two or three days of such weather, then appears the nameless disease. These diseased bees hatch out of combs so full of pollen that there is only a cell of brood here and there. These combs of pollen get so hot during these warm days that those scattering cells of brood which are almost ready to hatch are almost smothered; the young bee is oiled and shiny when it comes from the cell, and such bees are never seen around hives kept entirely out of the sun. Now, friend Root, if you have ever had the bad luck to smother a colony of bees in moving them, you have seen a whole colony of bees that, when dead, looked as if they had the nameless disease. I have seen these so-called diseased bees emerge from the cell, and never could find them so until whole combs of pollen had been stored, and the hottest weather we ever wished for had come.

Jackson, Mich., Mar. 13. L. J. TRIPP.

AN OLD BEE-ESCAPE.

I send you a bee-escape that I have had 29 years. It may, perhaps, assist in developing a better one for present use. Nearly all our supposed new discoveries are modifications of something previously in use. We often think we have something new; but looking over the old magazines we usually find that some one has given the plan before, and we have simply adapted it to our method of manipulation.



A BEE-ESCAPE 31 YEARS OLD.

L. C. WHITING.

Saginaw, East Side, Mich., Dec. 1, 1890.

[The bee-escape which friend W. sent us contains the marks of age, and on are stamped, "Patented 1860, June 26." Friend Whiting's statement above verifies almost exactly, as you see, what we have said very recently in the editorials in regard to many things being very old, which we sometimes suppose to be very new and original. We understand you to say, friend W., that you used this device for a bee-escape. If so, it rather antedates some new inventions made within the last two or three years.]

BEARS AND BEES; HOW THE OLD HONEY-THIEF WAS KILLED.

Friend Root:—Perhaps you will remember my letter which was published in GLEANINGS about our experience with bees and bears. It might be interesting to you to know that we had the pleasure of killing what we believe to be the old honey-thief. When we began working at the mill last summer, we found, by the number of tracks, that Bruin was still on deck. But we found it easier to find tracks than bears. One day when my brother John and myself were out prospecting for timber, as we were crossing a small ravine John caused my hair to rise by excitedly pointing at a large pine-tree up the hollow, and saying it was full of bears. We crept cautiously up behind a clump of brush, and peeked around. We saw an old she-bear and cub perched up in the tree, taking in the surroundings; and, not appearing to think us worthy of notice, John claimed the first shot, and then business commenced. First the old one gave an unearthly groan when a bullet struck her, and reared over backward, making the dry limbs crack as she went down. The cub quickly followed her, and we eagerly rushed up to see our game, and met the big one coming down with a friendly grin on her countenance, showing two rows of gleaming white teeth. Another shot in the head stunned her, and a knife finished her. The cub we found dead where it had fallen, and we felt brave and happy; for, although I have seen a good many bears, these were the first I ever helped kill.

Mapleton, Utah, Apr. 4. E. M. WHITING.

A CHEAP HIVE-COVER.

Friend Root:—I see quite a number of articles in GLEANINGS in regard to cheap material for hive-covers. I use the Simplicity cover frame, and cover it with ⅜ or ½ inch box-boards for a foundation, then cover that with Fay's manilla roofing-paper. This makes a cheap, light, durable, water-tight cover. I have covers that have been exposed to the action of the weather for three years, and are apparently as good as new. They require painting annually. The company furnish a paint at $1.25 per gallon. It is about the consistency of water, and a gallon will paint 100 or more covers. I winter on summer stands with an outside case similar to Mr. J. A. Green's arrangement, and use forest-leaves for packing. I do not lose two per cent in wintering. J. R. MORRISON.

Bates, Ill., Apr. 6.

A TEXAS HONEY-PLANT.

Mr. A. J. Cook:—I herewith send you an herb that I wish you to name for me. It is a natural growth in our part of the country, and, in my opinion, is a good honey-plant. My bees work on it all day long, just as thick as they do on buckwheat; average height, as per sample sent. It blooms the middle of March, and continues in bloom five or six weeks. To walk through the patch it has a sweet-smelling scent. W. J. CROWLEY.

Grapevine, Texas, April 10.

[Prof. Cook replies:]

The plant sent by Mr. Crowley, I do not find described in Gray's Manual. Dr. Beal tells me that it is *Vesicaria Nuttallii*. Thus we see that it belongs to the mustard family, and is closely related to mustard and rape. Thus we need not be surprised at the good words spoken for it by Mr. C. It would be interesting to know whether it is a serious weed like mustard. If not, it might pay to scatter the seeds in waste places wherever it would grow. I should be pleased to receive seeds, that I might try it here. A. J. COOK.

Ag'l College, Mich., Apr. 16.

ANOTHER SIMPLE WAY OF TELLING ADULTERATED WAX.

On page 334 I notice that a correspondent wishes to know how to tell adulterated wax. Although the way you give is good, I now give a more simple plan which was told me by a person who was for a long time employed in a large wholesale drug house in Albany. I have tried it frequently, and find it correct, as far as my experience goes; and if it is new to your readers, I hope they will experiment and report.

It is, to simply take a piece of common white chalk or school crayon, which should be reasonably soft, then break your cake of wax that is to be tested, and if the chalk will leave a plain mark on it it is pure; but if adulterated, the chalk will leave no mark. The above may be old to many, but I do not remember of seeing it in print. T. I. DUGDALE.
West Galway, N. Y., Apr. 20.

[The above test, if I am correct, depends on the spurious wax being softer than the genuine. While this is usually the case, I believe it is not always true. Nevertheless, your test is probably a valuable one.]

HOW TO GET GLASS CHEAP FOR SHIPPING-CASES.

You have always an eye open for saving the pennies of the honey-producer. Now, I would suggest that you let the brother bee-keepers know that old photographers' negatives answer very nicely for glass for honey cases or sections, and they can be had at almost every gallery for very little or for nothing, as they are not used for another exposure, and are a nuisance lying round a gallery. They can be readily cleaned by immersing in lye or ashes and hot water. The most common size is 5x7, and by practical experience I find that 2 inches clear is all the glass that is required for a 1-lb. section. By splitting these 5x7 pieces, two strips and a half are just enough to go across four 1-lb. sections. I have several thousand such negatives that I will sell cheap, or exchange for almost any thing in the line of supplies or queens, a book, or almost any thing. H. W. FUNK.
Bloomington, Ill., Apr. 7.

[We are glad to give the above a free notice, as it will help bee-keepers as well as the writer above.]

THOSE SPACING-STICKS OF DR. MILLER'S.

In March 15th GLEANINGS I see Dr. Miller has invented a new hive, and he says, "Now for a winter hive. I have invented a stick, in manner and form set forth, of just such size and proportion as to fit in the spaces between the top-bars." Well, Dr. M., I have used that same arrangement for nearly three years, a full description of which you will find in Aug. 1st GLEANINGS, 1890, page 556. 'Tis sad but true; and right here I wish to say it's the best arrangement possible to keep a brood-nest warm in the spring. E. D. KENEY.
Arcade, N. Y., Mar. 18.

[You may be the one we had in mind who first suggested the stick spacer, but we are of the opinion that there is some one before you yet.]

HONEY FROM LIMA BEANS, BY THE TON.

By the way, last fall I had my bees within from one to three miles of thousands of acres of lima beans. The consequence is, I am now extracting a ton or two of choice lima-bean honey, which is so thick that I have to warm the combs in my sun-extractor before I can extract it. As it is such a rare article, it occurred to me that you might have customers desiring some of it. I think it is fine. What could you afford to pay for some? R. WILKIN.
San Buenaventura, Cal.

[Thanks for the sample, friend W. The quality of the honey is very fair, although the color is somewhat against it. It would hardly be considered first class, although it is very fair. Now, here is an opportunity for bee-men to make capital out of the idea, in the vicinity of these great bean-fields. The next question is, Does it yield honey to this extent every year?]

Why not use honey with your lemon and ice? Try it. I will take the honey every time. See page 276. W. J. DRUMRIGHT.
Sarasota, Fla., Apr. 15.

ANOTHER PATENT-RIGHT MAN.

I had a patent-right man to see this morning. He wanted $10.00 for a right and one hive. I would not give that for a carload.
Jordan, Ky., Feb. 27. J. D. KENNADY.

1. Are drones pure, if reared from a pure Italian queen which mated with a black drone? 2. Is honey gathered from laurel flowers poisonous? With us they grow in the form of a bush, from three to four feet high.
McWILLIAMS & MILLER.
Prattsville, N. Y., March 30.

[1. It is generally agreed that they are, although one or two, including Doolittle, think the black drones do affect the blood somewhat. 2. A case of poisoning from laurel, in West Virginia, has been recorded. See "Poisonous Honey," in the A B C book.]

HOW TO MAKE HONEY CANDY.

Unlike the majority of bee-keepers, I should be glad to know of the surest means of making my honey candy. Can you give me a hint? Exposed to frost, it candies; but when no frost comes, what is to be done? Is cold the only means known? J. B. WEBER.
Paris, France, Feb. 14.

[We do not know of any way to make honey candy except to put it where it is cold. We have heard of placing it in an ice-house to have it candy in warm weather, but we do not know how it turned out.]

ADVANTAGE OF DOUBLE-WALLED HIVES.

I have fifteen colonies in double-walled hives, and four in single-walled hives. I winter on the summer stand, for the reason I have no bee-cellar and can not make one on my ground. I find that the bees in the single-walled hives consume far more honey than those do in the double-walled hives. FERRIS BURR.
Braidwood, Ill., April 12.

THE DOOLITTLE SOLAR WAX-EXTRACTOR, AND HOW IT WORKS.

I want to thank you and Mr. Doolittle for the description and cut of the solar wax-extractor in November number of GLEANINGS. I have made one, and it works well. Heretofore, whenever I undertook to make any wax I got myself and every thing else smeared and stuck up with it; but with the extractor I have no trouble at all. W. W. YOUNG.
Worthington, Ky., Apr. 20.

SEASON AND PROSPECT IN FLORIDA.

The season in this immediate neighborhood has been quite poor up to date, as the late winter and early spring flow of honey has been light, and the bees bred up but slowly. As a consequence there was almost no swarming at the usual time. In April we always look for a honey drouth, and I always feed to stimulate the queens to continue vigorous laying. I am feeding now, and am having a few swarms as a consequence. April 7th there came a freeze (the latest on record, I believe), that blasted the saw-palmetto and gallberry blooms on the mainland, so a large part of our May and early

June honey crop has been destroyed. These plants escaped harm. however, on the peninsula east of the river, one and a quarter miles away, so I may get some honey from there. The apiaries on the east side will probably get a good flow from these and other early honey-producers.

Twelve to fifteen miles south, the February and March flow was much better than here, and a fair increase in honey and colonies was secured. The mangrove promises well all along the Hillsboro River. so we hope for a good crop of white honey. I have 127 colonies at this date on the east coast of South Florida.

Hawks Park, Fla., April 30. W. S. Hart.

REPORTS ENCOURAGING.

We had a yield of 1800 lbs. of nice comb honey from 17 stands last summer. A. T. Crane.

Little Sioux, Ia., Feb. 26.

A case full of 1-lb. sections on two hives. How's that for April 27? Henry C. Ahlers.

New Orleans, La., Apr. 28.

BEES IN THE CELLAR WINTERING WELL.

I finished taking my bees out of the cellar this morning, and I have to report a loss of 2 out of 45 colonies. I put out 25 of them last Saturday. They are in splendid condition now.

Elsie, Mich., Apr. 13. R. F. Miller.

HONEY-FLOW FROM BLACKBERRY.

The honey-flow is good; very fine grade. I am getting 25 to 36 lbs. per colony from second story, first going over. I believe a large part of it is from blackberry, though it is not called a honey-plant; but, why not? C. P. Coffin.

Pontotoc, Miss., Apr. 27.

BEES DOING WELL.

Bees are doing well here in South Florida this spring. I started this spring with 9 swarms. I now have 17 rousing big ones. They are just piling in the honey by the bee-load, equal to any thing I ever saw at the North.

Auburndale, Fla., Apr. 25. R. Morse.

BEES IN GOOD CONDITION.

Bees are in good condition this spring, and the prospect for a good fruit-bloom is flattering. I don't think they will tear out the drone brood on the 13th of April this year, as they did last. They are now working on the elm-blossoms.

West Middletown, Pa., Apr. 11. L. Bell.

BEES DOING WELL.

Our bees are doing well this spring. I had 22 swarms last fall; lost 6 during the winter; have saved 15 fine swarms this spring, with a good prospect of several more. I took some honey yesterday, April 20. The cap held 18 lbs., and it was entirely sealed, and very nice.

Joseph Ryan.

Bayou Barbary, La., Apr. 21.

BEES ROLLING IN THE HONEY.

Bees are rolling the honey in. I never saw them doing so well at this time of year in my life. We have 11 stands, and I think we shall take 600 lbs. of honey this year. I will let you know how my calculations come out.

Emma J. Karnes.

Martinsburg, Ind., Apr. 22.

Bees are doing nicely in this part of Texas. Our neighbor, Mr. John, has had three swarms from one hive. M. F. Ragsdale.

Collinsville, Tex., Apr. 23.

332 COLONIES WINTERED IN THE CELLAR WITHOUT LOSS.

Last week I paid a short visit to A. J. Tibbits, Esq., at Downsville. He was removing his bees from the cellars, and it was something to see 332 colonies, all in fine condition. His cellars are three in all. His old one he said had done good service nearly 12 years, and looks all right for years to come. J. C. Staysa.

Weston, Wis., Apr. 20.

GOOD WINTERING IN THE CELLAR.

April 7 and 8 I took my bees from the cellar. Out of 70 colonies, only three were dead, and one of them was starved. I have looked them over and find them in good condition, but with very little brood and plenty of stores. I lost one colony out of four wintered outdoors in double-walled hives packed with planer shavings. I should like to correspond with some party in Idaho who can give me information in reference to bee-keeping there.

Buffalo, Minn., Apr. 10. A. C. Waldron.

BEES BOOMING.

I think we are on the eve of the best honey crop for many years, and my bees are just booming in the home apiary, which, by the way, is a perfect little beauty. The ground is hard, and covered with white sand. The hives are all under tall oaks, about 12 or 14 inches in diameter. The fresh and lovely green leaves just coming out make every thing grand this morning. Bowing my head in humble thanks to Him who gave me this as well as other great blessings, I am yours truly,

Catchall, S. C., Apr. 13. W. J. Ellison.

BEES BOOMING IN FLORIDA.

Through February and March our bees were just booming; had the brood-nests full, and I had to extract to give them room for brood. There were a good many swarms in March. Now they are killing off their drones, and are awful cross. Robbing is so bad I have to use the tent in feeding and working with them. There is plenty of saw-palmetto bloom, but it is so very dry that it yields no nectar. If it doesn't rain soon, a great many bees will starve, and that at a time when we ought to be getting our surplus. J. H. Hill.

Venice, Fla., April 15.

REPORTS DISCOURAGING.

BEES ALL DEAD.

Please discontinue. Bees are about all dead. I hope to be able to subscribe again soon.

J. B. Armacost.

Hollansburg, O., March 24.

GREAT LOSS OF BEES.

There is a great loss of bees in this section this spring. Trouble, starvation.

Brooklyn, Pa., Apr. 8. Luther S. Ely.

DISCOURAGING.

Please discontinue Gleanings, as I have been very unsuccessful. I had 43 colonies last spring. I got two swarms and no honey. This spring I have 9 colonies left. John Koch.

Columbiana, O., April 9.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 185. *Which is better for summer—a single or double walled hive?*

Single.
Ohio. N. W. H. R. BOARDMAN.

Double-walled.
Illinois. N. W. DADANT & SON.

A double-walled hive.
Vermont. N. W. A. E. MANUM.

A single-walled hive.
New York. E. RAMBLER.

Double-walled, the year round.
Wisconsin. S. W. E. FRANCE.

My preference is strongly for the double wall.
Ohio. N. W. E. E. HASTY.

I have had no experience, except with single-walled hives.
Illinois. N. W. C. MRS. L. HARRISON.

Single for us. With one apiary, or where wintered out of doors, the case is different.
New York. C. P. H. ELWOOD.

A single-walled hive is better at any time of the year in a climate like that of Southern or Middle Ohio.
Ohio. S. W. C. F. MUTH.

I use single-walled hives, summer and winter. When wintered in cellar, I don't believe we need any thicker.
Wisconsin. S. W. S. I. FREEBORN.

Single-walled hives, by all means. All double-walled hives are a clog upon that kind of manipulation which means success.
Michigan. S. W. JAMES HEDDON.

I don't know. I think a single one. I'm sure it's best for the bee-keeper, if the bees will do as good work in it.
Illinois. N. C. C. MILLER.

If it were not for the extra expense I should prefer a double-walled hive, but shading with a board or grapevine answers almost as well.
Louisiana. E. C. P. L. VIALLON.

The single is more convenient. The double is somewhat better for the bees. All things considered, I would take them single.
California. S. R. WILKIN.

I prefer a single-walled hive at all seasons. I then would use a cheap handy packing-case in spring, or in spring and winter both, if I wintered out of doors.
Michigan. C. A. J. COOK.

A double-walled hive, if properly ventilated, is better for the bees, but not so good for the bee-keeper. I would not have hives permanently double-walled.
Illinois. N. C. J. A. GREEN.

"I don't know;" but the hives in my apiary that had an outer case, and were packed in chaff and cut straw last season, yielded much more surplus than those in single-walled hives; and I'm so well pleased with the results of one season's trial that I intend to repeat the process the coming season.
Ohio. N. W. A. B. MASON.

All things considered, I prefer the double-walled hive, especially where there is chaff or fine straw between the walls. Bees in such hives rarely stop work in the sections on account of heat, while they are often driven from the same on many hot days during a copious flow of honey, when in single-walled hives.
New York. C. G. M. DOOLITTLE.

[It really troubles me, friends, to see such a "disagreement" among the "doctors" on a matter of so much importance. The permanent-wall chaff hive, such as we have sold and illustrated for so many years, was a child of mine, and it is more than likely that I am somewhat prejudiced in its favor. The testimony of friends Mason and Doolittle, it seems to me, is pretty hard to explain away; but we might add, that they are in a northern climate. But then, our friend Viallon, away down south, says even there he would prefer a double-walled hive: and I am abundantly satisfied, that, a great many times at least, a double-walled hive is a real protection from the severe heat of summer. I suppose it depends a good deal upon how the hive is made, and may be somewhat as to whether it is located in the shade or in the direct rays of the sun. Very likely, too, a pent-up locality, say with buildings surrounding so there would be but little wind, may have something to do with it. Now, I think I would compromise the matter by always having both kinds of hives in the apiary.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

RAPID MULTIPLICATION AND NEW GENERATIONS IN GARDENING.

This is a matter that has interested me greatly, especially when there is a sudden and great demand for any particular plant and vegetable. How can we multiply it most rapidly? With strawberries we want to make them put out runners as quickly as possible. The new plants want to be rooted at the very earliest moment, and then they are to be set at work putting out runners in like manner. We have plants of some varieties that have started runners even May 1. By June 1 we expect to have strong plants; and these in a month more will be sending out runners likewise. Another thing, these new plants made from runners during the month of May, if set out in rich ground, will, with the long season before them, make a tremendous growth if they are *just crowded;* and it is these plants, with the Jessie variety, that give fruit in the fall. We are going to try hard for a crop of fall berries this year.

There is another plant (or vegetable, rather) that seems to delight in multiplying its species. It is the Egyptian onion. Last season we filled orders for sets and bulbs that grew at the bottom of big plants, to something like $40.00. This reduced our stock so that we found ourselves unable this spring to furnish onions for the market-wagon. What we had were on exceedingly rich ground on the creek bottom, and they have made a prodigious growth. In fact, I never saw any thing in the shape of onions, with foliage like them. As we want the sets to plant out, we are in a hurry to have them send up seed-stalks; and, like the strawberries, great vigorous seed-shoots were started so as to be visible May 1. Of course, the Egyptian produces the sets on top of the stalk. Now, I do not know how much matured these top sets must be to grow; but I pulled them off last season, when they were quite green and immature, and set them in rich ground: and they grew right along "from the word go." Very likely we shall have these sets big enough to grow by June 1: and if they, like the strawberries, have the whole season to grow, in the rich ground, what will they do? I confess I do not know. But I should greatly enjoy giving them the best kind of ground, and all the room they want. We have picked up every thing on our whole grounds in the shape of Egyptian onions, and planted it out, so as to get sets to fill orders and increase our stock. We pulled a *few* of those reserved for seed, and put them on the wagon. The stalks were almost as large as hoe-handles, and half a yard long. People took them greedily for 5 cents for a half-pound bunch. There is something funny about this Egyptian onion. It not only puts in its best energies for the sets at the top of the stalk, but, while it is doing it, small onions are branching out from the root, like the multiplier or potato onions. Now, these sets from the root produce onions not only exactly like those from the top sets, but the bottoms are just what we want to put in beds under the benches in the greenhouse. With but little light and moderate heat, each onion will, in a few months, make a great bunch of onions. When planted in the field, side by side, the bottom sets make a rather stronger onion than the top sets—that is, in the same length of time.

GRAND RAPIDS LETTUCE.

It is now the 4th of May, and the Grand Rapids lettuce is *still* bringing 25 cents per lb. During the present season we expect to build a greenhouse almost expressly for this lettuce; and in order to economize space we propose to have beds under each bench, for pie-plant, asparagus, winter onions, and I rather think we can make spinach do tolerably well under the beds, especially if we arrange them so as to let the light come in from all sides. This is an important item, for, after we once go to the expense of a glass roof, it will be quite an object to have one crop above another; and I think we can so manage as to utilize all the space, above and below. This will enable us to get *two* crops from the same greenhouse at the same time.

Our good friend Eugene Davis sends us a copy of the Grand Rapids *Democrat* for April 29, containing the following in regard to lettuce-growing under glass.

POSSIBILITIES OF HORTICULTURE UNDER GLASS.

Are the possibilities of horticulture under glass equal to the growth of vegetation in the open air? What kind of greenhouse structures are most suited to plant-growth?

The famous "Kew Gardens," of London, are noted for the magnificence of growth which plants attain; surpassing specimens of the same species found in their native home. The "Jardin des Plantes," of Paris are also noted for the art and science of horticulture, and, like the Royal Botanic Gardens, enjoy a world-wide reputation for the charming splendor they afford. The first botanic garden was established in Padua, Italy, in 1545, and was soon followed by one at Pisa. The success of these gardens was such that, at the close of the eighteenth century, 1600 botanic gardens were established in Europe. All the evidence obtainable proves, without any question, that greenhouse structures, if properly constructed and managed, can be the means of producing the very best specimens of plants.

The construction of a greenhouse should be made with a view of the kind of plants we wish to grow; but, as John Thorpe ably puts it, "First, last, and all the time, to the south." The rays of light in passing through glass lose much of their energy; and the further the light travels before reaching the plants, the slower will be their growth, for the light rapidly diminishes from the roof to the benches. Plants require all the light it is possible to give them. Without an effort to reduce the shade necessary in construction, a poorer development of growth will be noticed. The effect of light on plant-growth is not so easily noticed by the amateur. One unaccustomed to greenhouse plants will invariably mistake height and general appearance upon entering a shady house for the darker green, stockiness, and weight of leaf found in lighter structures; and it is only when plants are put side by side that a marked difference can be seen. Peter Henderson has said, "The best house for lettuce-growing should be built to the south, and nearly flat."

EFFECTS OF LIGHT AND SHADE.

Progressive greenhouse men are continually reducing the shade by using larger panes of glass. Mr. Knight, of London, said to be an unquestionable authority, when speaking on the effect of light or shade, says: "The massive rafters, framed sashes, inferior glass, inserted in small fragments, with numerous overlaps, liable to be choked with dirt, intercept a large portion of the solar light and heat in ordinary glass houses." The new system of butting the ends of glass together with white lead, when glazing, makes such an air-tight house that I can not recommend the system for lettuce culture. So tight are these houses, that a tobacco smoke made in the evening will be quite thick the next morning; and one hour of ventilation is necessary to change the air in such a house and get rid of the accumulated smoke. I have seen a house glazed in this way like a "wardian case," taking up moisture from the soil in the broad sunshine, and falling in thousands of sparkling drops. Carnations can be made to grow in such a house, if air in abundance is given every time the opportunity affords. I believe roses and callas would delight in such a moist atmosphere, but lettuce soon rots in the stalk when it has made such a dense growth. I have not syringed carnations for months in this house, and there is no sign of red spider. Any morning, unless the soil is dry in the house, a magnifying-glass shows the carnation leaves to be covered with dew. The best lettuce I have grown is in a house glazed in the old style of lapping the glass. This house is so full of openings that tobacco smoke escapes in twenty minutes.

Roses refuse to bloom during the winter months in houses running north and south, or bloom so seldom as to make their culture unprofitable. Face the same structure to the south, and a constant cutting of bloom can be secured. Light, also, has an influence upon the development in color. The same variety of roses grown in sunny or shady houses, when placed side by side, appear like different kinds. Soils, also, change the color of flowers. A heavy soil in a shady house will produce flowers about the same shade as light soil in a sunny house; and to get the fullest development of green, glossy foliage, thick leaf and pure color for roses, they should have a heavy soil and a sunny exposure.

GLASS FOR LETTUCE.

That most successful lettuce-grower, Mr. Eugene Davis, once asked me if I did not think that a house facing east and west is the best for growing lettuce. I assured him that I was in favor of a south slope for any thing; for, although I was obliged to admit that, from March 1, the east and west is the best, a better average is secured in the north and south three-quarter-span houses, because I could produce a better article during the winter months; and if not quite so good later, on account of a higher temperature, a good merchantable article is a certainty. The house facing south gets all the sun there is during the shortest days; and as they lengthen, and the sun rises more to the east, the south-slope house gets more shade, but a good average amount. Our houses, facing east and west, have now, April 20, a large amount of sunshine, and air must be given as early as 6 o'clock in the morning, while the south house can be closed until 8. Another advantage in the south house is the opportunity to do the watering morning and evening, as the oblique rays of the sun allow four or five hours a day for this work, which can not be found in the other houses. The light admitted to the south house increases in intensity from 9 to 12, and is strong for six hours. This bright light, causing a stocky growth, allows the admittance of a large quantity of air without wilting the plants. Light is heat. The heat from the sunlight is what we want, using the artificial to keep out the frost. The less fuel we burn and keep our houses warm with solar light, is not only economy in fuel, but economy in plant-growth. I am fully convinced, that the greatest success in horticulture under glass depends more on having our structures built expressly for the different plants under cultivation than in all other skill combined. The ideal house for lettuce and carnations should be built with permanent rails for glass to the north, one third pitch, and all framed sashes to the south, ready at a moment's notice to slide off easily. In this way no whitewash would be needed, as an abundance of air could always be had, and the sun's rays would not be too hot through the glass for the north bench. Whitewashing the glass should be delayed always as long as possible, as the darkness and moisture invite that dreaded enemy, the aphis. Sun and air are death to the green fly, and life to plants.

THE QUESTION DISCUSSED.

The subject was open, and many questions were asked and answered by those who had had experience. It seemed to be the prevailing idea by those not accustomed to glass that it is something wrapped in a mystery. This is not so. Any one who has common sense can manage a greenhouse, and the secretary was sorry to see so few horticultural structures in Grand Rapids. Mr. Smith, when asked how he kept up the fertility of the soil, replied that he used ground bone and other fertilizers. Tobacco smoke was used to destroy the green fly, but a decoction of tobacco-water was generally used, as it lasted longer than a smoke, which was made often too strong for the plants for so short a time to kill the fly. Pyrethrum in water will kill the aphis, but is an expensive method. Mr. Smith was asked which size glass he preferred, and replied that 18x20 was his choice, and some houses he had erected when he began would be pulled down during the coming summer and rebuilt with large panes. Replying to the extra hazard on account of hail for the larger panes of glass, Mr. Smith said the Florists' Association have an insurance clause for hail.

ONIONS FOR FALL PLANTING.

For a good many years Landreth's people have advertised an onion which they call the Bloomsdale Pearl; but in their catalogues they always say they are suitable only in the extreme South, for fall planting. In reading the accounts of this immense onion, the sets of which are planted in the fall, I have for years been longing for something similar that could remain out all winter in our climate. I have before remarked, that we succeeded in getting beautiful onions of this same variety by starting them in the greenhouse. Well, last fall, in Johnson & Stokes' quarterly price list they gave a picture on the back cover, of an immense onion called the American Extra Early Pearl. Their description is as follows:

> This remarkable onion is the earliest and best of all the white varieties, far surpassing Silver King, White Tripoli, and other sorts in great size, thickness, rapid growth, bottoming, and keeping qualities. It grows to enormous size, of pearly-white color, the outer skin having a most showy, waxy appearance, flesh of a pure snow white, and flavor so mild that it can be eaten like an apple. It grows with wonderful rapidity, reaching the first season a fine large size from seed; and if sets are planted out in the fall, either in the North or South, they will reach the enormous size of six to seven inches diameter, frequently weighing three to four pounds each, long before onions of any other variety reach sufficient size for market. Hundreds of market-gardeners to whom we supply sets every fall completely control the early markets with this profitable variety. A splendid keeper, succeeding everywhere. Our seed and sets of this wonderful variety are Philadelphia-grown.

Now, the thing in the above description that attracted my attention particularly is this: "If sets are planted out in the fall, they will, in the North or South, reach the enormous size of six or seven inches in diameter." They were advertised for September and October planting. On the strength of the above I sent at once for a peck of sets. They were carefully planted on good ground, came up at once, and made a fine growth. At present writing I can not discover that a single one of them suffered over winter, although they were entirely unprotected. Of course, last winter was unusually mild; but the weather this spring has been very trying to strawberries and spinach, and other things of a similar nature that were wintered over outdoors. The onions, at present writing, May 7, are nearly the size of hens' eggs, and growing nicely. What astonishes me is, that Johnson & Stokes do not make more of a fuss about it, if they have really got a large onion that will keep over winter in the ground *north* or *south*. If it really succeeds, as it seems to bid fair to do, it will give just as good results, or better, than the "new onion culture" of which so much has been said; and the work can all be done in September and October, when time is not usually worth so much to the market-gardener as it is in the spring. By the way, there is something exceedingly interesting about this wonderful hardy vegetable, the onion. New things are coming up so constantly that quite a little book might be written, giving the full history and peculiarities of the different members of the onion family. Another thing that makes it *doubly interesting* is, that Bermuda onions are to-day quoted at *$2.75* per crate. The crate does not hold a bushel, and the onions are comparatively poor things at that. I said to our boys on the wagon, "Why, you can never sell such onions, and get your money back, in the world." But they replied, "Yes, we can. We know they are not very attractive looking, but people must have dry onions of some kind." Now, just think of it! At these enormous prices, and the market not fully supplied, we have sets of beautiful white onions that may be planted in the fall, and will give onions very early next season, *six or seven inches in diameter*—at least, so Johnson & Stokes say; and our own, out in the field, look very much as if it were, at least to *some extent*, true.

BURLAP COVER FOR GREENHOUSE.

Send the burlap immediately, as I need it to cover my greenhouse. J. DALLAS.
Sharpsville, Pa., Dec. 3.

[Thanks for the idea, friend D. Burlap is cheap, and would doubtless keep out a good deal of frost.]

OUR HOMES.

Give, and it shall be given unto you.—LUKE 6:38.

I have long wanted to talk more on this matter of giving; but I confess my faith has been somewhat small that it would be received in the right spirit, especially when there has been so much discouragement, and, in many cases, absolute poverty, among bee-keepers. I feared many of the brethren would say, "Brother Root, it may be all very well for *you* to *give;* but how are we, who have hardly the means to get along, going to give to *others*, or to missions, or other foreign work?" Then I thought of telling you that one great reason why your resources were so cramped was because you did not *believe* nor *heed* the little text I have started out with. While I had the matter in mind, our good pastor, Mr. Norman Plass, gave us a sermon containing so many of the right texts and so much exhortation in just the line I wanted to talk on, that I have decided to give it to you entire. The text he has chosen is not exactly the same as my own; but it is, nevertheless, in the same line, as you will notice.

Remember the words of the Lord Jesus, how he said, It is more blessed to give than to receive.—ACTS 20:35.

"THE WORDS OF THE LORD JESUS."

We often wish that we had a more complete record of the words and deeds of Christ. What did he say and do during his boyhood—during those years of young manhood, before he entered upon his public ministry? What were the "gracious words that proceeded out of his mouth," at which his old acquaintances marveled upon his return to Nazareth? If we accept the account of the woman taken in adultery, what was it his finger traced when he "stooped down and wrote upon the ground"? Amid the divergence of opinion as to what prophecies of the Old Testament are Messianic and what are not, who would not be delighted to know which ones he chose when, walking with the two disciples to Emmaus, he "began at Moses and all the prophets, and expounded unto them in all the Scriptures the things concerning himself"? What magnificent Sunday reading that expository sermon would make if we only had of it a stenographic report! How thankful we should be that *four* writers instead of *one* were inspired to record the life and words of Christ, so that we have many an event, many an utterance, preserved from the rapidly disappearing tradition, that we should not have had were only one moved by the Spirit to perform this deed of love! Suppose the sacred Narrative had been closed before John had written his Gospel—who can measure the extent of the loss we should have sustained? What if that glorious chapter of comfort, the 14th, or that beautiful chapter of prayer, the 17th, were not recorded—would not the burden of sorrow and discouragement have rested heavier upon the world? It is now agreed that the 21st chapter of John's Gospel was a *later addition*, written by John himself, no doubt, yet some time after the rest of his narrative was completed. How, at the very thought of the possibility of having lost it, our hearts throb with thankfulness for the preservation of our Lord's conversation with Peter, therein contained, when Jesus forgives the denial and restores him to the discipleship! It has proved to many the magic touch that has restored courage to their fainting hearts. But John by no means *completes* the record of Christ's words and deeds. In the last verse of this last chapter he says: "And there are also many other things which Jesus did, the which, if they should be written every one, I suppose that even the world itself could not contain the books that should be written"—a hyperbole, to be sure, and yet giving us a hint at the vast mass of unrecorded tradition, still familar to the disciples' minds, but soon to disappear.

With the close of John's record a feeling of sadness steals over us at the thought that, in the remainder of the New Testament, we are to find recorded no more of the direct utterances of Christ. Next to this Fourth Gospel stands the book of the Acts of the Apostles. It is *their* deeds and words, and not Christ's, that we are now to read. It is no longer the light, but the witness to the light—no longer the face-to-face vision, but the reflection—the echo, and not the voice itself—that we shall see and hear.

But as we read on, how our hearts pulsate with gladness to find among the jewels of this precious book one *royal gem*. To the elders of the Ephesian church Paul speaks. The words that he addresses to them are golden words, full of self-sacrifice and zeal in the Master's cause; but suddenly from amid the gold there scintillates forth a sparkling gem, hitherto unseen by us, but polished and set by Christ himself. "Remember the words of the Lord Jesus," says Paul, "how he said, *It is more blessed to give than to receive.*" With these words he closes his address; and we search the remaining books of the New Testament in vain for another gem from the lips of Christ when here on earth.

This is, indeed, a royal saying, rescued from oblivion, and added to the abiding treasures of the church. It is a saying worthy to proceed from the lips of the Son of God. "It is *more blessed* to give than to receive." Or, the words might be transposed in the order that they stand in the original Greek: "Blessed, or 'blissgiving,' is it to give rather than to receive." "Happier is the *giver* than the *receiver*," is no doubt the thought that Christ intended to impart—he who *gives* receives the greater blessing.

"King Neon loved riches, so he shared them with his people," said Mencius, the Chinese sage, 350 B. C. When depressed, and at the ebb of fortune, Mark Antony cried out: "I have lost all, except what I have given away." Thus reads an Italian inscription: "What I gave away I saved; what I spent I used; what I kept I lost." These are truthful sayings, the product of a philosophical bent of mind, and underlie the declaration of Christ that "it is more blessed to give than to receive," but fall far short of the Christian conception of those words. Let us look at another class of expressions. "I never knew how it was," said Richard Baxter, "but I always seem to have the most come in when I give the most away." Says Dr. Taylor: "This is ever the divine law: We get by giving. We must sow if we would reap; we must open our hearts in love to others, if we would have God's love shed abroad in our own souls." Says George MacDonald, in "Mary Marston," "In giving, a man receives more than he gives, and the more is in proportion to the worth of the thing given." Says Gladstone, in a recent article in the *Nineteenth Century:* "He (who gives) will learn as to giving, that, like mercy, 'It blesses him that gives and him that takes;' nay, that, done in a certain manner, it is even a surer and a larger blessing to the first than to the second." The expression of one other is, that "in this world it is not what we take up, but what we give up, that makes us rich." These are Christian truths, based upon such declarations of Scripture as these: "Give, and it shall be given unto you" (Luke 6:38). "He that hath pity on the poor lendeth unto the Lord; and that which he hath given shall he pay him again" (Prov. 19:17). "He that soweth sparingly shall reap also sparingly; and he that soweth bountifully shall reap also bountifully. Every man according as he purposeth in his heart, so let him give; not grudgingly, or of necessity; for God loveth a cheerful giver. And God is able to make all grace abound toward you; that ye, always having all sufficiency in all things, may abound to every good work; being enriched in every thing to all bountifulness" (II. Cor. 9:6, 7, 8, 11). All this, and much more we might quote, has reference to a *return in kind that God will give to those who give.* This is a Christian truth, because the non-Christian world conceived not of it, because the non-Christian mind receives it not to-day. "What a man can keep from giving is so much gain," is the maxim of the world—"It is more blessed to *receive* than to *give*." But the world has been convinced that it *actually pays* in the end to observe one day of rest in seven; that it actually pays to take the *good* grain from the granary and scatter it forth upon the earth; and why should not the world be convinced that it actually pays to give a portion of one's *income*, as well as of one's *time*, to the Lord? and that it actually pays to scatter seeds of *benevolence*, especially when God has declared of this very act: "He that soweth sparingly shall reap also sparingly; and he that soweth bountifully shall reap also bountifully"? If God can multiply a man's income by *two*, there is no reason in the world why he can not multiply it by *ten*. In a thousand ways is

God able to speed the forces of increase. "Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again." Don't you believe that? Can't you trust God's word for that? Giving to the Lord is but *lending*. The security is good and the interest is compounded monthly. But although the returns are so sure and great, this would not make a very good business to set up in, if you had no other. You expect returns in business. But in giving, "Do good, and lend, hoping for nothing again, and your reward shall be great," says Christ. Giving to the Lord *because* it pays does *not* pay. An old Scotch farmer attended a missionary meeting, and, although little accustomed to giving, after considerable struggle, and especially with an eye to the promised returns, he ventured to cast a shilling into the box. On his journey home that beautiful moonlight night he saw lying in the road a shining shilling, which he was not slow to pick up. On reaching home he told of the meeting, related how the speaker had said that, if a man gave to the Lord, the Lord would give it back, and added: "Now I know that these men tell the truth, for I gave a shilling to the collection, and coming home I found one in the road." One of the servant-men, having listened to the old farmer's account, at length said: "Now, master, do you think that ye understand it right? I'll tell you how I think it is. You see, you gave the shilling because you expected to have it given you back; and ye see, master, the Lord loveth a cheerful giver, and so he did not like your giving that way, and I dare say he just thought he would not have your money on that principle, and so he threw it at you on the road." We can not invest money in this way, looking for the returns. It is not so much in *faith* nor in *hope* as in *love* that we must give to the Lord. Give in the spirit of Him who, "though he was rich, yet for our sakes he became poor, that we through his poverty might be rich"—"wherefore," we read, "God hath highly exalted him." If we give as Christ gave, "hoping for nothing again," in the spirit of loving self-sacrifice, our reward will be great. "The love of Christ constraineth us."

Here is a man who says: "I believe all that, and by and by, when I get a start in the world—get out of debt and a little better fixed—I intend to practice it. For the present, I beg thee have me excused." Very well! your case is reported. The Lord, who has kept you all these days, so that you have wanted no good thing, writes in his book of remembrance, opposite your name, these words: "Forgetful. He hasn't all he wants, and refuses to be thankful for what he has. He will give nothing this year for the advancement of my cause, but has determined to forget me. This year I will forget him." Impossible? Oh, no! The Lord can very easily forget you for a year or two, if you choose not to remember him. How much of a "start" will you get in the world then? If you fail to sow, how much will you reap? Christ says: "He that soweth sparingly shall reap also sparingly."

Here is a man who says: "Business is dull, and times are hard. I can scarcely make both ends meet. I must give less to the church this year. Report me for just half what I gave last year, and I don't believe I can pay that." Very well! your case is reported. The Lord, who has prospered you hitherto, so that no evil has befallen you and no plague has come nigh your dwelling, writes in his book of remembrance opposite your name: "Ungrateful. He complains of the good times I have given him as 'hard times.' This year I will let him regulate his own times. I will let sickness come, and expenses multiply; I will turn his business to another's account. He gives me less; he shall have less." Impossible? Oh, no! "He that soweth sparingly shall reap also sparingly." From an *economic* point of view, the house of God is a poor place at which to begin to economize. You can not afford to feed up the seed-corn.

Here is a man who says: "I will give as much to the Lord's work this year as I gave last, but I can't afford to give more." Very well! The Lord writes upon his page of remembrance, opposite your name: "Satisfied. Let him receive as he gives. Let his blessings not multiply; let his harvest not increase." Impossible? Oh, no! "Whatsoever a man soweth, that—that, and no more—shall he also reap."

Here is a man who says: "The church is growing. The expenses must necessarily increase. The demands of the Lord's work are greater to-day than ever before. I have more love for the Lord's work than ever before. I must increase my contribution this year. I have received freely, freely will I give. I will pay cheerfully and promptly, that the Lord's good work may go on." The book of remembrance is taken out, and the Lord writes these words: "Faithful. Well done. Thou hast been faithful over a few things, I will make thee ruler over many things. Thine increase shall be great." Impossible? Oh, no! "He that soweth bountifully shall reap also bountifully." "There is that scattereth, and yet increaseth." "The liberal soul shall be made fat: and he that watereth shall be watered also himself."

But I hear some one say: "The little I could give—what difference can it make to the Lord? If the cattle upon a thousand hills are his, and the silver and the gold are his, why doesn't he use *them* as he will?" What if he should take you at your word? The "cattle upon a thousand hills" includes *your* cattle, and "the silver and the gold" includes *your* silver and gold. It is a very easy matter for the Lord to transfer these to some one who is ready to yield them for his service. Would it be right? Is it not lawful for him to do what he will with his own? Why should he do it? Because "there is that withholdeth more than is meet, but it tendeth to poverty." The little God has given you is not yours to control, but yours to consecrate. As Dr. Dale puts it: "Christianity really teaches us to say: What seems thine is not thine, and what seems mine is not mine; whatever thou hast belongs to God, and whatever I have belongs to God; you and I must use what we have, according to God's will." It may not be much you can do; but

"Every smallest hand can lend some kind of helpful touch,
Lift the weight a little, and the many make the much."

Your little is *little* in *your* hand, but *great* in *God's* hand.

But we have not yet touched the deepest meaning of the words, "It is more blessed to give than to receive." We have only taken into consideration the return in kind that the Lord will make to those who give to him. There is a return not in kind. The best things in life can not be bought, and the best rewards of life can not be measured by any money standard. Christ did not say, "It is more *profitable* to give than to receive: that would have been true, but he uttered a greater truth than that—"It is more *blessed* to give than to receive." Who has not experienced the blessedness of giving! Who has not felt the joy that comes with the sense of having lightened the burden of human want, or of having been able in this way to further the cause of Christ! A professor, who was called "the students' friend," because of his helpful kindness, was one day walking with one of his pupils when they came across the shoes of a poor man who was working in the field near by. "Let us hide them, and have some fun," said the student. "No! that wouldn't do," replied his friend. "We must never amuse ourselves at the expense of the suffering of others. You are rich. Suppose you put a crown piece in each of the shoes, and then we will hide ourselves and see what the poor man will do." This was done. Presently the poor laborer came from the field, and, finding his shoes, put his foot into one of them. but, feeling some hard substance there, quickly removed it and took out the crown. Looking about in surprise, and seeing no one, he put it in his pocket. When he went to put on his other shoe, he found the other crown. This was too much for him, and he fell upon his knees and thanked God for the unknown giver who had thus lightened his burdens, for now Mary, his sick wife, could have the medicines she so much needed, and his starving children could have bread. The young man was deeply affected, tears stood in his eyes. "Now," said the professor, "are you not better pleased than if you had played your intended trick?" "O dearest sir!" answered the youth. "you have taught me a lesson I shall never forget. I feel now the truth of the words which I never before understood—'It is more blessed to give than to receive.'" We can not always stand by and see the good we do; but God knows, and his ministering angels come at his bidding and touch our hearts with joy. It is then that we feel the blessedness of giving. It is then that we understand what men mean when they tell us that it is a *luxury* to give. Men have sometimes said, at the close of life, that they would give all they were worth if they only knew that they had been the means of saving a single soul. Do not wait, but give now, as the Lord has prospered you, and you can know it. Every dollar you give toward your own church contributes to that end. When you have given ninety dollars to foreign missions, you have furnished the means of bringing one soul into the kingdom. Will not the glory be yours? Give forty dollars to sustain a Bible-reader one year, and who can tell the number of souls you may save? "A cup of cold water, given in the name of a disciple, shall not lose its reward." A little child gave an abandoned woman a flower that reminded her of home and brought her at length to Christ. You pray for the prosperity of Zion, but "prepaid prayers" are the best. Letters in large numbers reach the dead-letter office because they are not prepaid. Is not this the reason why so many of our prayers go astray, and we receive no answer back? It would make a good proverb, if it is not already one: "He *prays* best who *pays* best." The woman who cast in her two mites; Mary, who anointed her Lord's feet; Sarah Hosmer, the factory woman of Lowell, who five times gave fifty dollars that Nestoria might have the gospel, herself living in an attic; these are among the number who have felt the blessedness of giving, and whose prayers rise like sweet incense unto God.

But what if you receive no return in *kind*, and do not realize the *blessedness* of giving? Is there no reward? To be sure, if you give in the right spirit, great will be the return, and the reward of blessedness, in the world to come. "Giving to the Lord," some one has said, "is but transporting your goods to a higher floor." We sometimes speak of the "surprises of heaven." I believe the greatest surprise will be to find how much Christ esteems the little deed, the little gift, in his name. "He that receiveth you receiveth me." "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." A poor man, passing homeward one night, pitied a poor soldier shivering in his sentry-box because of the intense cold, and pulled off his overcoat and gave it to him, and started home on a run. When, not long after, the poor man lay upon his death-bed, he had a vision of Jesus one night. "Why!" he exclaimed in surprise, "you have my coat on." "Yes!" the Master replied, "it is the coat you lent me that cold night when I was on duty and you passed by. I was naked, and ye clothed me." Christ has reference to this future blessedness when he says: "When thou makest a feast, call the poor, the maimed, the lame, the blind; and thou shalt be blessed; for they can not recompense thee; for thou shalt be recompensed at the resurrection of the just." Paul has reference to this when he says to Timothy: "Charge them that are rich in this world . . . . that they do good, that they be rich in good works, ready to distribute, willing to communicate, laying up in store for themselves a good foundation against the time to come, that they may lay hold on eternal life." "They *have* their reward," Christ said of certain ones; but it is true of him who gives in the spirit of Christ, that his greatest reward is to come. To use the words of another, "If a man gives to have the reputation of giving, he commonly gets that reputation. He ought to be satisfied. He has given for a certain reward, and has received it. He has no more right to look for another reward hereafter, than a man who sells a barrel of flour for an agreed price has to look for a vote of thanks or a present of honey from the family using the flour. One thing or the other—cash or credit—when you make a sale. If you get the cash, the account is balanced—closed. But if you look for nothing now, and receive nothing now, you may expect a return by and by. There's all the difference here between selling grain and planting grain. Selling grain for cash, you get your return at once. Planting grain, you look for your return in the harvest. What you bury out of sight of men, in your quiet and trustful giving, God watches and cares for, and will give an increase to, which shall whiten the field before you."

Ben Adam had a golden coin one day,
Which he put out at interest with a Jew.
Year after year, awaiting him, it lay,
Until the doubled coin two pieces grew,
And these two, four—so on, till people said,
"How rich Ben Adam is!" and bowed the servile head.

But Selim had a golden coin that day,
Which to a stranger asking alms he gave,
Who went rejoicing on his unknown way.
Ben Selim died, too poor to own a grave;
But when his soul reached heaven, angels with pride
Showed him the wealth to which his coin had multiplied.

SOME KIND WORDS IN GOOD EARNEST.

"ON THE FENCE," ETC.

Mr. Root:—We have just received our new number of GLEANINGS. I have read your beautiful and masterly article, "Thou God seest me." I never read any thing like those articles. I think perhaps you yourself do not appreciate how unique in literature they are. I also hope you are taking the precaution of saving copies of *all* of them. I should think they *must* be called for, to be published in book form. They are far too valuable to be buried in a magazine. They are so thoroughly practical, and such a blessed absence of doctrine in them, they come right down to and tackle firmly the common every-day occurrences of our lives, which is just what is wanted, but what all other sermons I have ever read seem most industriously to shun. The episode of the oranges, I should think, would soften and lead in the right path many a heart now "on the fence" (as you were), so powerful is what comes from the heart.

Now, Mr. Root, we are on the "ragged edge" with worry. Our bees *must* swarm soon. The hive is overflowing, and we have no foundation. Oh dear! could you not send the foundation ordered below as quick as lightning? The frames are not quite so badly needed. We could not get the money to send before to-day, or would have sent before. I wish to know how much per thousand you will supply me labels like the inclosed pattern. I want them to label eggs. They would have to be very cheap indeed, or I could not make any thing. They need not be cut. They might be in sheets, and I could cut them. They need not have dividing lines. The great thing is the number I could get for a dollar. They do not need good paper; size, half an inch to an inch. Please let me know as soon as possible.

L. S. Hayden.

Lyndon Station, Wis., May 11.

[My good friend, I do not know how to thank you for your kind words; but I am sure you are greatly prejudiced in my favor. I suppose there are certain things and certain people that seem to appeal particularly to certain individuals; and my fashion of pleading for Christ Jesus happens to be in a peculiar line that comes home to you particularly. I hesitated somewhat about using such a letter as yours, evidently not intended for print, especially after the severe criticisms I have lately received. However, I feel that your words may do others good as well as myself. Yes, dear friend, I suppose there are thousands of young people, and may be older ones, who are "on the fence," exactly as I was when just coming out of my teens; and a great responsibility rests upon us who are older, and who have found that the key to the only true and abiding happiness is to make sure that, when these young people get down *off* from that fence, they get down on the right side—on the side that prompts them to live for others; or, if you choose, on the side of Christ Jesus. When I wrote under those words, "Thou God seest me," I felt in my heart that I had a message for *some* one; and I had a bright faith that the message *would* do good. Now, who do you suppose brought the first fruits of that message? None other than my own daughter, who is away at school. She, too, is eighteen; and (when I did not dream of it) my earnest pleading went home to her young heart, and stirred up in her a resolve to break away from self, and live for others, in a way perhaps she had never felt before. I really wanted to print some extracts from that letter; but I knew so well that both she and her mother would object so emphatically, that I lacked courage to even ask permission.

And now, my friend, you have aroused my Yankee curiosity in regard to labeling eggs. By some means you failed to inclose the pattern, and I have been puzzling my brains to know what it is like. Are you going to put a label on each egg as soon as it is laid, and say, "This egg was laid on the morning of May 15th"? You see, the grocer could get an extra price for the "recent" ones.

Your foundation went by express within one hour after your letter was opened, and your frames will follow by freight at once. You see, we are up with orders now, or very nearly so, and we just enjoy the fun of getting goods off before our friends have time to expect them. If the railroad companies would only do *their* part, how nicely we should get along!

TOBACCO COLUMN.

GOES SECURITY FOR A FRIEND.

Please send to A. L. Stuart, Ottawa, Kan., a smoker. I am a subscriber to Gleanings, and will pay for it if he commences again.

Ottawa, Kan., Apr. 20. W. F. Stuart.

QUITS SQUARE OFF.

If you will send me a smoker I pledge to quit the use of tobacco; and if I break the pledge I will pay for the smoker. Geo. W. Reader.

Lynn Haven, Va., May 1.

BREAKS HIS PLEDGE.

Inclosed please find 70 cents to pay for the smoker which I ordered from you for Willliam Bergmann, for quitting the use tobacco. He has broken his pledge. G. W. T. Reynolds.

Poag, Ill., April 2.

Send a smoker to Mr. A. Kyger. He has quit the use of tobacco, owing to articles published by you; and if he is ever foolish enough to use the vile weed again he will pay you for the smoker. L. C. Hughes.

Tucson, Ariz., Apr. 23.

Will you please send a smoker to my brother, John F. Post? I have given him a hive of bees, and he wants a smoker. He has stopped smoking tobacco, and agrees to pay for the smoker if he ever commences again, and I will see that you get pay for the smoker if he breaks his promise. S. B. Post.

England, Pa., March 20.

I have used tobacco for thirty years. I have not used any in six months; and as you offer a smoker, I should like one; and if I ever use tobacco again I will pay you the price of the smoker. Geo. M. Bostick has a few hives of bees, and has quit using tobacco also. I pledge myself to pay for them if we ever commence again, and will pay you two dollars for them.

Elora, Tenn., March 11. J. A. Smith.

A friend of mine, Clarke Denny, Cordova, Ky., has signified his intention of quitting the use of tobacco; and seeing your advertisement promising a smoker to all who quit, he asks that I have one sent to his address. He promises that, if he ever begins the use of the weed again, he will pay for the same. But, never fear. I will watch him close; and if he ever begins I promise to remit the price of the smoker.

Morgan, Ky., March 2. Henry C. Clemons.

I am so much pleased with the copy of Gleanings that you sent me that you will find in my order $1.00 for it a year. I saw in another copy, that any person who had stopped using tobacco with the expectation of never using it again would get a smoker; therefore I think I am entitled to one. I will promise upon my honor to pay for it if I ever use tobacco again.

L. H. Decker.

West Millbrook, Mich., Feb. 21.

My husband had been using tobacco for nearly twenty years; but through the influence of the Tobacco Column he has quit it entirely. He has not tasted it for almost a year. A friend asked him one day how it was he quit the use of tobacco. He said, "I can thank A. I. Root for it." He has been a reader of Gleanings for nearly four years. He has now 45 stands of bees. Please send me a smoker. Should he again use the weed I will pay for the smoker.

Mrs. Lizzie Beebe.

Point Pleasant, Pa., Feb. 23.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

Honor the Lord with thy substance, and with the first-fruits of all thine increase; so shall thy barns be filled with plenty, and thy presses shall burst out with new wine.—PROV. 3: 9, 10.

WE give in this issue, 16 pages extra as usual.

F. H. & E. H. DEWEY have already paid 20 per cent duty on their last importation of queens. For further particulars in regard to the matter, see Prof. Cook's article elsewhere.

BY a letter just at hand, we learn that they are having very trying weather for bees in England, and that cold east winds have prevailed for weeks. A great number of stocks have died.

WE notice that the Wisconsin State Legislature, on the 14th of April, passed a bill to suppress foul brood among bees, with a provision for a State foul-brood inspector, and an appropriation of $500 for the purpose.

HUTCHINSON says, in the *Country Gentleman*, page 357, that, next to the Heddon divisible brood-chamber, he would prefer the eight-frame Dovetailed hive; that is, one of that style, with a loose bottom and flat cover. "It is really an excellent hive," he says.

J. M. JENKINS has sent us a neat little mailing and introducing cage. It is quite similar to the Benton, only it has two compartments instead of three, and, perhaps, for ordinary distances it will do very well. A one-cent stamp is all that is required to send it to any part of the United States or Canada.

IN spite of all we can do, the new edition of our A B C may not be out as soon as the old one is exhausted. The new edition, while it will be distinctively a work for beginners, will contain more matter for the advanced bee-keeper. Many whole subjects are being entirely re-written, and some entirely new ones are being added.

THE *British Bee Journal* is now having a series of articles on mounting microscopic objects particularly relating to the bee. If any one is interested in the study of the microscope, and in dissecting the bee, he will do well to obtain these numbers of the journal. They tell how to dissect the trachea, the muscles, the nerve-chain, the sting, etc.

WE want the names of several good reliable commission men in the several cities of the United States. We wish to give good and accurate honey quotations for the entire country, for the coming season. Will bee-keepers who know and have had dealings with reliable houses please send in their names? We have a good corps already, but we want it very largely increased.

ON account of our success in mailing queens to Australia and to the distant islands of the sea, *by mail*, we have orders booked for one select tested queen, two tested, and one tested honey queen, to parties in Australia; also one select tested to the West Indies, and two untested to Japan. We expect to send them out in a day or two; and as soon as we get reports from them we shall be glad to give our readers the result.

HONEY from fruit-blossoms is coming in at a pretty good rate to-day (13th). We never saw more new honey in the hives at this time of the year, although we have had some rather cool weather, with occasional frosts at night. It has also been pretty dry, although it looks as if we might have rain soon. The prospects (that is about all we have had for the last two years) are good so far for an old-fashioned honey season.

ALTHOUGH the subject of wintering should not now be discussed, yet, for fear we may not mention it again, we would say, that, this spring, when we discovered the bees were noisy, we could very quickly quiet them by swinging the door backward and forward rapidly, 25 or 30 times. This produced a marked circulation of air, as well as a marked difference in the behavior of the bees. We tried it a number of times, and in about an hour afterward we observed that the bees had become perfectly quiet. Yes, Dr. Miller, there is something in the ventilation of bee-cellars.

THE honey-jumble business is booming, so the bakers say. One firm uses up three barrels of inferior honey a week, and this despite the fact of the tariff reduction on sugar. There is a certain quality in honey not found in other sweets, that will keep cakes for an indefinite length of time. Jumbles seem to be about as good three or four years after being made as when first baked. In fact, they are one of the things that improve with age. Ask your baker or groceryman if he keeps them. This will induce him to order a trial lot, if he does not already have them, and so improve the outlet for dark honey.

ALTHOUGH we have quite a lot of reports encouraging in this issue, yet, from letters that have come in from various sources, it is evident that there have been pretty severe losses in certain sections of the country; and the fact that we have had a big rush of orders for bees and queens rather points in the same direction. A great many write that their bees have all died, and that they want just a nucleus to make a start, as they have a lot of empty hives, with good nice straight combs. Others are in a great hurry for their queens, as their bees are weak and queenless. We hope to have statistical reports in our next issue that will give a little more accurately the situation.

THE sixteenth thousand of Prof. Cook's "Bee-keepers' Guide" is just out. By scanning through the pages we do not discover that this edition has been revised. The price has been reduced to an even dollar. We have taken a little pains to look through the work, especially the scientific part of it. Cheshire's, although a magnificent work, is, we fear, not entirely accurate in some things; and Mr. Cowan's, while wonderfully free from errors, is a little too scientific and condensed for the average novice. Prof. Cook's book is written in a pleasing, popular style, and is, perhaps, as accurate as Mr. Cowan's work. The practical part, although not recently revised, is pretty well up to the times. We can furnish it at the author's price —$1.00.

THERE is a sort of general impression, that bees in box hives outdoors will winter where those in modern hives will die. We somewhat question whether this is true. J. A. Stone, on page 391, last issue, says that more than half the bees in his section of country died through the winter, and they were all in box hives. It is true, that too much tinkering in "new-fangled hives" kills bees; and it is also true, that, when the bees have prepared their winter nest in the fall, the same ought not to be disturbed—or, at least, the combs should not be shifted. The fact is, the modern double-walled hives will winter just as well outdoors as box hives, and a great deal better in most cases. Reports have shown it over and over again.

Neighbor H. says he has observed, for several winters back, that his colonies with imported queens wintered the best. Last winter, although he suffered very severe losses among his home-bred stocks, he lost practically none of his colonies from imported queens. When it is remembered that the imported queens had been on a long journey across the ocean, these results are quite significant. The bees of imported stock are, as a general rule, leather-colored, and the queens are rather dark. As we have suffered very little loss during the years past, we have not had an opportunity of comparing the relative hardiness of foreign and home-bred queens, although one of our imported stock died last winter, among the others.

We have just been purchasing some colonies on loose frames. An old Pennsylvania Dutchman who brought them up said he did not know why the bees bulged his combs so, and made them so crooked. We told him that they were spaced too far apart and too near together. Then he said he wished we would give him something next time that would space the frames just right. We showed him the Hoffman frames; and as his face lighted up he said, "Oh! dot's it! dot's it. Dey von't toomble all togedder ven ve gome to pring de pees oop t' M'tina, like dose racks vid tin corners on dit for me." Perhaps we should remark, that his combs, not having been fixed before moving, had jolted together; and when we pulled off the wire screens the bees were any thing but amiable. One queen was killed.

We notice, by a recent issue of one of the papers, that no less than 10,000 patents have been taken out for car-couplings. This number far exceeds "all possible novel and useful combinations that could be devised in constructing such an article." This is a rank injustice to inventors, and the proper officials should see that it is stopped. There should not be more than one patent allowed on one idea, thing, or function, or combination of things, functions, and ideas. Patent-office reports are complete enough so that proper investigation should show whether the *identical* idea had been already covered by a patent. Apiculture is not exempt from the plurality of patents on one article, as we have already shown. We don't mean to be "cranky" on patents, but the facts above show that a good deal of money is wasted.

SUGAR SYRUP COMB HONEY.

An old farmer met us a few days ago, and put to us this question: "How do you feed bees sugar syrup to make comb honey?"

We stared at him a minute, and was about to take affront; but observing that he meant no insult, we said: "We do not do it, and, besides, it would be unprofitable business, to say nothing of the fraud that would be imposed on the consumer."

"But," said he, "sugar is away down, and syrup will cost only three or four cents a pound. There would be big money in feeding it to the bees, and getting 20 cts. a pound for it in comb honey."

We assured him that this practice would not pay when sugar was nine cents a pound; that much of the syrup would be lost in brood-rearing and the abnormal stimulation of the colony. We told him, further, that we very much doubted whether, at even the present very low price, it would be a very big bonanza. We hope none of our readers would think of doing such a thing, even if it would pay.

COLORADO AND ITS ALFALFA RESOURCES.

Mr. J. L. Peabody, of Denver, Col., sends us a newspaper clipping from which we take the following, written by H. Knight, of Littleton:

> Only a few years ago the Colorado State Bee-keepers' Association started with but six members; now we have about one hundred. There are now in the State over 800 bee-keepers, and four years ago not one person was making a specialty of honey production. Now there are at least fifty that number their colonies by the hundred, and sell honey by the ton, so that, in 1889, about three hundred thousand pounds was produced, and in 1890 nearly half a million pounds of alfalfa honey was gathered by the busy bees.

We have known for a year back that Colorado was rapidly developing as a great honey State; and if what is stated in the above is true, we are not at all surprised. Still, it is a long way behind in annual honey production compared with that of a good many other States—California and York State, for instance.

A. G. HILL'S NEW BEE-SMOKER.

This new smoker has been tried in our apiary, and critically examined in every way here at the home of the Honey-bees. It embodies a bright idea, and may *eclipse* all other smokers. We do not see any thing said about a patent, or any thing of the sort; but we hereby protest against any one copying this smoker, or any feature of it. So far as we know, the invention belongs to Mr. Hill. And now let us, as bee-keepers and manufacturers of supplies, show our manliness by letting Mr. Hill have what seems justly to belong to him. We have made arrangements whereby we can furnish these smokers at his prices; viz., Hill smoker, 3-inch barrel, by express or freight, $1.20; by mail, $1.40. The bright thing about the whole invention is the cover and blast-tube formed out of one piece of metal, without joint or solder. The bottom of the fire-pot is also put in in the same way, without joint or solder, and so constructed as not to burn whatever it may come in contact with.

FOUNDATION ¼ INCH THICK.

We have just been introducing some radical improvements in making foundation-mills. We are sending a good many of them to Germany now, and some of the German bee-keepers want the foundation walls extra thick. One of these mills turns out foundation ¼ inch thick. We sent a sample of it to Bro. Newman, and he makes this very kind notice of it:

> We should imagine that the walls are sufficiently high to satisfy any one, even the most exacting. The workmanship on the mill must be first class, for the product is simply superb.

Perhaps we should add, that the foundation we are now making on our mills is very near perfection. Some of the very thinnest is so transparent that you can read coarse print through it when placed close to the wax; in fact, it is beautiful, even if we do say it. Another thing, we have so improved the mills that the wax *sometimes* runs through the mill without sticking to either roll. From all our late mills the foundation comes off much easier.

WE have, up to May 1, 10,299 subscribers.

LOTTERIES, GIFT ENTERPRISES, ETC., PROHIBITED FROM PASSING THROUGH THE MAILS.

The following comes on a card, from the Postmaster-General:

CAUTION.

POSTOFFICE DEPARTMENT.
Washington, D. C., January 27, 1891.

The attention of patrons of the postoffice is called to the fact that the law lately enacted prescribing penalties for using the United States Mails for the conveyance or transmittal of
LOTTERY
matter of any kind, applies as well to the person mailing money, money-orders, postal notes, or drafts to lottery companies or their agents, as it does to the lottery companies and their agents.

All persons are therefore warned *not to use the mails for such purposes*, and attention is called to the following extract from the law on the subject passed September 19, 1890:

Revised Statutes of the United States—

Sec. 3894. No letter, postal-card, or circular concerning any lottery, so-called gift concert, or other similar enterprise offering prizes dependent on lot or chance, or concerning schemes devised for the purpose of obtaining money or property under false pretenses, and no list of the drawings at any lottery or similar scheme, and no lottery ticket or part thereof, and no check, draft, bill, money, postal note, or money order for the purchase of any ticket, or part thereof, or any share or chance in any such lottery or gift enterprise, shall be carried through the mail, or delivered at or through any postoffice or branch thereof, or by any letter-carrier; nor shall any newspaper, circular, pamphlet, or publication of any kind containing an advertisement of any lottery or gift enterprise of any kind offering prizes dependent upon lot or chance, or containing any list of prizes awarded at the drawings of any such lottery or gift enterprise, whether said list is of any part or of all of the drawing, be carried in the mail or delivered by any postmaster or letter-carrier. Any person who shall knowingly deposit or cause to be deposited, or who shall knowingly send or cause to be sent, any thing to be conveyed or delivered by mail in violation of this section, or who shall knowingly cause to be delivered by mail any thing herein forbidden to be carried by mail, shall be deemed guilty of a misdemeanor, and on conviction, shall be punished by a fine of not more than five hundred dollars, or by imprisonment for not more than one year, or by both such fine and imprisonment for each offense

BY ORDER OF THE POSTMASTER-GENERAL.

CONVENTION NOTICES.

The Cortland Union Bee-keepers' Association will hold their spring meeting at the residence of President J. H. Kennedy, No. 120 Groton Avenue, Cortland, N. Y., Tuesday, May 26, 1891. A special invitation is extended to the ladies. All interested are invited. M. H. FAIRBANKS, Sec'y.

The annual picnic of the Oneida and Madison County Bee-keepers' Association will be held at the residence of Edward B. Beebee, at Oneida Castle, N. Y., on Thursday June 4th, 1891. These gatherings have become very popular, and largely attended, and it is expected that this one will eclipse any that has yet been held. Every one interested is cordially invited to attend. COMMITTEE.

SPECIAL NOTICES.

SPECIAL TERMS.

All dealers in bee-keepers' supplies, and those who buy to sell again, should bear in mind that we give special terms, made known on application, on all bee-keepers' supplies, and especially on goods of our manufacture.

LAWN-MOWERS.

This is the season for mowing the lawns and apiaries, and we call your attention to our adv't on another page, presenting our two standbys in lawn-mowers. These are both good machines, and I think the price is lower than you can get from your local dealer. The Globe is, of course, the best machine; but for those who have only a small lot to mow, and don't want to put much money into a mower, the Young America presents a good opportunity.

SECTIONS.

Our new stock of lumber is now sufficiently seasoned for use, and we are turning out about the whitest and nicest sections we ever made. Some of the lumber would be better if a little drier, but it is not so damp as to discolor; and the very drying weather we have had for a month back has worked wonders on it. Price of these white sections is as usual—$3.50 for 1000; $6.50 for 2000; $9.00 for 3000, or $14.00 for 5000. We have, besides, about 300,000 cream sections that are of very good quality, smooth, and well made, but a little off color, at 50c per 1000 less than above prices. We have these only in 1⅞, 1¾, and 7-to-the-foot widths, open top and bottom—no other kinds or sizes.

HONEY-KEGS.

Most of the commission men seem to go back on the 60-lb. square cans for extracted honey, claiming that kegs are preferable. Our experience with kegs has not been the best; but owing to the amount of testimony on the other side we shall have to conclude that we are prejudiced, and will give the kegs a fair trial again. We are prepared to furnish new full-hoop kegs, at the following prices, F. O. B. here or Townsend, Mass.:

4, 4½, or 5 gallons, 40c each; $3.50 for 10.
10 gallon, 60c each; $5.50 for 10.
20 gallon, 80c each; $7.50 for 10.

OUR GOODS NEAR YOUR HOME.

We have established a number of depots of supplies, east, south, and west, from which many of our goods can be had at our prices.

F. A. Salisbury, West Genesee St., Syracuse, N. Y., keeps nearly a full line of supplies at our prices.

Jenkins & Parker, Wetumpka, Ala., also furnish our goods.

T. G. Newman & Son, 246 East Madison St., Chicago, Ill., handle our Dovetailed hives and some other supplies at our prices.

Jos. Nysewander, Des Moines, Ia., also carries a pretty full line.

Barteldes & Co., Denver, Col., and F. L. Posson & Co., Portland, Ore., also carry our goods.

Remember, you can not get *all* the goods we advertise, at these places; but the principal things needed by bee-keepers just now are on hand, and you may save time and freight by sending there instead of ordering of us.

ODD-SIZED SECTIONS IN STOCK.

We have the following lot of odd-sized sections in stock, which we will close out at the prices opposite. If you see any in the list that you can use, we shall be pleased to have your order First come, first served. Unless you are prompt you had better name a second choice, to use in case the first choice is gone.

850	4 x4 x1 15/16,	open top,	$2.50.
1000	4¼x4⅛x1 15/16,	" "	3.00.
1000	4⅛x5⅛x1 15/16,	" "	3.00.
1000	4½x4½x1 15/16,	" "	3.50.
400	4¼x5¼x1⅞,	" "	1.50.
200	4⅛x5⅛x1 11/16,	" "	.75.
500	4½x5 x1 15/16,	" "	1.50.

3500 4 15/16x5 5/16x1 15/16, no openings; $3 per M.; $8 for lot.
1000 4½x4½x1 15/16, cut for glass; $3.00.
1000 5x5 scant, 2nd quality; $2.00.
500 5x5x1 15/16, closed top; $1.75.
375 5⅝x4⅜x1 15/16, open top; $1.25.
500 6x4½x2, closed top; $1.50.
1000 6⅜x5x1 15/16, open top; $3.50.
875 6x4¼x2, open top; $3.00.
300 5x6x1 15/16, open top; $1.25.

Remember, first dimension is the width, or measure of top and bottom; the second is the height, or side.

SHIPPING GOODS PROMPTLY.

The volume of business for this time of year is very good considering the discouraging reports of bees lost in wintering in many places; still we are not shipping nearly as many goods as we were doing this time last year. As our facilities are much better than last year, we are, as a matter of course, taking care of orders promptly. There are occasional exceptions, when something turns up to delay an order; but the rule now is, for goods to go within from one to four days after receiving the order. As a reserve stock we have on hand about 700 chaff hives, 350 one-story chaff hives, 350 portico hives, besides about 200 No. 1 E and 1200 No. 2 E Dovetailed hives, old style, mentioned in last GLEANINGS. These, instead of being packed with old-style brood-frames and slatted honey-boards, are, most of them, furnished with thick top-frames and no honey-boards, the same as our present make, the only difference being that they are ½ inch narrower, and have no division-boards, followers, and wedges. We will sell these at the following special prices as long as they last; but be sure, in making your orders, to ask for the special old-style hives, and avoid mistakes and misunderstandings.

No. 1 complete, in flat, old style, $5.00 for 5; $9.50 for 10.

No. 1 E, same without sections, separators, and starters, $4.00 for 5; $7.50 for 10.

No. 2 complete, old style, $7.00 for 5; $13.50 for 10.

No. 2 E, no sections, fdn. starters, nor separators, $5.00 for 5; $9.50 for 10.

JAPANESE BUCKWHEAT.

While there has been a scarcity of all kinds of feed, and consequent high prices, a good deal of Japanese buckwheat has been used for feed, and we have had several reports of its value for this purpose. As it is a good yielder, and matures so soon, and likewise produces honey, it is a good thing to grow. We have a good supply of choice seed at these prices: 1 peck, 35c; ½ bu., 60c; 1 bu., $1 00; 2 bu., $1.75; 10 bu., $8.00. If customers in the West will send in their orders at once we can ship to them from Goshen, Mo., thus saving freight. We can not ship from there after June 1, so you must be prompt. We can also ship from Rogersville, Mich.

REDUCTION IN THE PRICE OF ALUMINIUM RULES.

The little rules mentioned on page 288 are now offered us so low that we have reduced the price to 20 cts. postpaid, instead of 25; or we will mail you six for $1.00. While aluminium is hardly light enough to float on water, these rules, if laid carefully on the surface, before they are wet all over will actually float on water, and they are certainly quite a scientific curiosity. A strong light metal, and one perfectly free from tarnish, as a rule for measurements ought to be well worth the price to almost anybody.

KIND WORDS FROM OUR CUSTOMERS.

We are all so well pleased with your Leader shears that I will order three more pairs. JOHN KARR.
Little Rock, Ark., April 27.

Don't stop GLEANINGS; make it longer, wider, thicker, or shorter; but don't make it so it can't get to my postoffice. I expect to take it as long as I live.
Mt. Erie, Ill., Apr. 15. J. J. McCOY.

A BEE-KEEPER IN EARNEST.

I started after the goods with my horse. She strained herself going out of the stable, and I am afraid she will die. I carried them home on my back, 7 miles. Our roads are not good here. We have the Ohio road-law, and can't get any thing done on them except what we do gratis. D. PARMENTIER.
Norman, Wash.

MUCH PLEASED OVER THE DOOLITTLE SOLAR WAX-EXTRACTOR.

I am very much pleased with your solar extractor. It is a wonderful invention. It extracts wax and honey at the same time, and the honey is good too; and such nice pure yellow wax! Every apiary needs one. I took my bees out of the cellar Apr. 13. They came out strong and healthy. N. P. ASPINWALL.
Harrison, Min., May 2.

A BIG TESTIMONIAL FOR THE BARNES SAW.

I received the Barnes combined machine in the best of order, and I must say it is the most complete machine of the kind I ever saw. I have worked with many buzz-saws, but none will equal this one. I see you have made many valuable changes in the A B C since I received my first edition some five years ago. A. S. BROWN.
Londonderry, O., April 22.

Can you not send me 100 pamphlets on treating disease without medicine? A gentleman says he has not felt as well for ten years as he does now after using the treatment four days. Some of Dr. Hall's patients are feeling a little disappointed on account of having to pay $4 for the same treatment, as they have told me. T. H. CHANCE.
Fostoria, O., April 24.

[We send you 100, with pleasure.]

I have bought seeds for twenty years, and never received so much for so little money. Now, if they grow well I shall buy all my seeds of you hereafter.
Mattawana, Pa., Apr. 13. MRS. SARAH E. YODER.

I subscribed for GLEANINGS through T. G. Newman & Son. I am well pleased with it. I have learned enough from one article (the one on rendering old combs with sulphuric acid, page 120, Feb. 15) to pay my subscription for ten years.
Elsinore, Cal., March 20. LAFAYETTE YATES.

Money is pretty scarce with me, and I do not keep bees now; but GLEANINGS has been a constant visitor for the last 12 years, and I thought that Our Homes and Dr. Miller's article about the thoughts that come up in church were worth the price of it. It seemed to hit my case exactly. Such thoughts come up, although I try to keep them back on Sunday. I hope money will be more plentiful by the time this runs out. GEO. P. HOWARD.
Mexico, N. Y., Mar. 9.

MORE THAN SATISFIED.

The bees came last Friday, all in good shape. The memorandum bill came to hand yesterday. We desire to express our gratitude to you for sending a tested in place of untested queen. I ordered untested, because you recommend to beginners an untested queen, one frame of brood and one pound of bees. You have certainly given us more than specified. The bees are working finely, and do not seem homesick in the least. My daughter is much encouraged. H. A. BILLINGS.
Dayton, Ohio, May 12.

DOVETAILED HIVES, WITH HOFFMAN FRAMES, NEAR PERFECTION.

Late in December I sent you an order for ten Dovetailed hives in the flat, with Hoffman frames. They came early in January, in good condition, together with the other things which I sent for. I was away from home when they arrived or I would have reported before. Not even one little stick was missing—every thing going together like clockwork. I must say that I am about as near happy as can be over my purchase; and I think that, for a single-walled hive, your Dovetailed hive, with Hoffman frames, is now as near perfection as it can be. I have sent you several orders before, and never have had any cause for complaint. WM. H. LUM.
Stevenson, Conn.

THAT SEWING-MACHINE, AND HOW IT PLEASES.

Friend Root:—Sewing-machine No. 4, high arm, was received all right. It's a daisy, and does as good work as other machines sold around here at from forty to sixty dollars, and is just as good in every particular, so far as I can see. I will just say, it is all that is claimed for it, and more too. The machine was not for myself, but for a daughter who is married and keeping house. She and her husband have been talking of buying a machine for quite a while. When I saw your ad't in GLEANINGS, I at them to let me order one for them. They said there were so many frauds advertised in the papers, they were afraid to. I told them I would be responsible for all frauds that come through the GLEANINGS family. Now they are well pleased.
Morristown, Ind., March 7. LEROY DYER.

ITALIANS Tested queen, $1.50; Untested, $1.00. Nuclei, brood, and bees by the lb. Send for price list.
MRS. A. M. KNEELAND,
9tfdb Box 77. Mulberry Grove, Bond Co., Ill.
☞In responding to this advertisement mention GLEANINGS.

QUEENS, QUEENS.
Price List Free.
H. ALLEY, Wenham, Essex Co., Mass.
Please mention this paper. 6tfd

MY 23D ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. *H. H. BROWN, Light St., Col. Co., Pa.*
Please mention this paper.

LADIES SAVE YOUR MONEY.

FINE SHOES AT $2.17 A PAIR
SENT POSTPAID.

Genuine Kid—Soft Soles, Elegant Style, Perfect Fitting—a shoe that has style, and will wear as long as shoes sold at $2.50 and $3.00. Try them. You will be pleased, for they are **GOOD SHOES.**

Widths, C, D, E, EE. Sizes, 1 to 7.

Do you want Broad or Narrow toe?
Send P. O. order, registered letter, or postal note.

C. L. GRIESINGER, MEDINA, O.
Reference—Gleanings. 8-9-10d.
Please mention this paper.

Queens · From · Texas.

Kind friends, I have untested Italian queens from now till September, at 75c each; $4.00 for 6, or $7.25 per doz. I have shipped hundreds this spring, and all by return mail so far. I have my breeding yards kept out on the lone prairie at safe distance. Give me your orders and see how promptly I can fill them. 100 nuclei running. 10tfdb

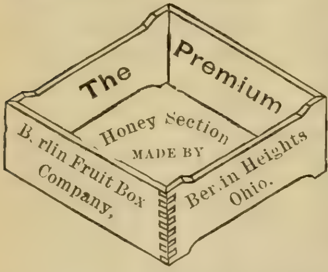
MRS. JENNIE ATCHLEY,
Box V., Farmersville, Tex.
In writing to advertisers please mention this paper. 3-8db

FOUNDATION & SECTIONS are my specialties. No. 1 V-groove Sections at $3.00 per 1000. Special Prices to dealers. Send for free price list of every thing needed in the apiary.
1tfdb **M. H. HUNT, Bell Branch, Mich.**
In responding to this advertisement mention GLEANINGS.

PURE ⁖ ITALIAN ⁖ QUEENS.

TESTED, $1.50. IMPORTED
UNTESTED, $1.00. MOTHER.

MISSES S. & M. BARNES, PIKETON, OHIO.
Please mention GLEANINGS. 6-7-8-9-10-12d



ONE-PIECE SECTIONS,

both No. 1 & 2; WOOD SEPARATORS and other bee-supplies. Also BERRY-CRATES, BASKETS and BOXES, made up or in flat. Send for catalogue. Address as in cut.

Please mention this paper. 5-10db

IMPORTED ITALIAN QUEENS.
W. C. FRAZIER, ATLANTIC, IOWA.
7-17db Please mention this paper.

STOP! THINK! ACT!

Griffith's Italian queens will give you strong colonies, plenty of honey, and nice bees. 7-12db

Untested queens in May, $1.00.
" " in June, July, and Aug., 75c.
Tested " in May, $1.25.
" " in June, July, Aug., & Sept., $1.00.

All queens reared from best imported and choice home mothers. Safe arrival guaranteed. Address all orders to **B. C. GRIFFITH,** Griffith, N. C. Postoffice order on Charlotte, or reg. let. to Griffith.
Please mention this paper.

MUSICAL INSTRUMENTS

MURRAY & HEISS
CLEVELAND OHIO.
SEND FOR CATALOGUE.
1-tfdb
In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

OCEANSIDE MILL CO.,
1-12db **Oceanside, Cal.**
In responding to this advertisement mention GLEANINGS.

SAMUEL JONES,

Manufacturer of Bee-keepers' Supplies. Free catalogue. *Highland Park College*, DesMoines, Ia.
In responding to this advertisement mention GLEANINGS.

Syracuse, New York,

IS A DEPOT FOR THE EAST FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

Don't buy foundation of us, for it would please you.

F. A. SALISBURY.

Our Foundation is kept for sale by
HENRY ALLEY, Wenham, Mass.
In writing to advertisers please mention this paper. 4tfdb

NOW, FRIENDS, LOOK HERE!

I sell the Nonpareil Bee-Hive, White Poplar Sections, Italian Bees and Queens. Price List free. Write for one. 8tfdb

A. A. BYARD, West Chesterfield, N. H.
In responding to this advertisement mention GLEANINGS.

J. W. Taylor's Fine Italian * * * * * * and Albino Queens for Sale.

Cheap tested Italian, $1.50 each. Tested Albinos, $1.50 each. Tested golden Italian, $2.00 each. Untested queens, 75 cts. each; $8.00 per doz. I guarantee safe arrival by mail. 9tfdb

J. W. TAYLOR, Ozan, Ark.

For Sale at Wholesale Prices.

One Parlor Organ, $45.00; retail, $85.00.
One Wagon and one Horse, $45.00; retail, $90.00.
One Barnes Saw, $25.00; retail, $35.00.
Can sell only ONE of each at this price. 9-10d.

L. L. ESENHOWER, Reading, Pa.
Please mention this paper.

FOR SALE.

75 colonies of Italian bees in Langstroth 10-frame, and A. I. Root's 8-frame Dovetailed hives, at $5.00 per colony. A liberal discount on more than one colony.

JOHN GRANT, Batavia, Clermont Co., O.
Mention this paper. 9-10-11d

FOR SALE.

100 L. size combs, on standard wired frames, made from foundation free from disease, at 10c each. Also a Barnes combined saw, good as new. 9-10d

H. W. AVIS, Matteawan, Dutchess Co., N. Y.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. JUNE 1, 1891. No. 11.

STRAY STRAWS

FROM DR. C. C. MILLER.

A sun wax-extractor pays. Always ready.

The *Western Farmer* has a good bee-editor. Dr. J. W. Vance.

My four colonies outdoors wintered well. They had entrances 12 by 2!

E. E. Hasty thinks it possible that honey-eaters may be long livers.

Ants. G. A. Simpkins (*A. B. K.*) drives them away by sprinkling sulphur.

Blackwalnut is mentioned by Chas. White, in *N. B. K.*, as a heavy pollen-yielder.

The *Nebraska B. K.* thinks 35 per cent of colonies in that region failed in wintering.

My bees, Prof. Cook, I feel pretty sure, sting dark materials more readily than white.

Prof. Cook is a poor hand to sort grain. He gets seed corn mixed in with his nubbins.

W. L. Coggshall thinks there are five essentials for success in bee-keeping: Location, man, appliances, hives, bees.

Throw a warped board on the ground, in the sun, hollow side down, and see how soon it will straighten out.

H. Fitz Hart has used closed-end frames with bee-space outside of end-bars, and found no trouble from propolis.

For smoker fuel I've never tried any thing better than hard-wood turning-lathe shavings, osage orange taking the lead.

New things are generally reported rose-color. Those who succeed, report promptly; those who fail, generally keep still.

Has Prof. Cook any *reason*, other than custom, for the editorial "we"? Will not the same reason make him say "he" for a worker?

Gleanings for May 1 has converted me in theory to fixed frames. I'll consult the bees about it before I'm much converted in practice.

The *American Bee-keeper* proposes to make a specialty of catering to the needs of those who have had little or no experience. A good field.

Some people who justify Dr. Hall in taking $4 would feel very indignant if a merchant charged them 4 cents for an article that they afterward found they could get anywhere else for a cent.

My bees never built up so fast. To-day, May 14, they've been just four weeks out of the cellar, and many of them have had brood taken away to give the queen room. They've had gorgeous weather.

My latest spacer is a little stick 2½ inches long, nailed on one side of one end-bar, and another on the opposite side of the other end-bar.

The *Missouri Bee-keeper* for May has nearly all its space occupied with the report of the Missouri State convention; and the space is *well* occupied.

Emma took a good look at the picture on page 369, and then remarked, with some emphasis, "Well, Mr. Ernest, *you* can sit on that sharp edge if you want to."

Dadant says, "Workers do not live, on an average, more than 35 days during the working season." Isn't that a week less than other authorities? Who is right?

W. W. Case, p. 379, says bees draw out foundation best in a heavy flow. Doolittle says, when honey comes slowly. I follow both, and give full sheets at all times.

Those latest improvements in the Clark smoker are a real comfort—the little holes giving air, with no chance for sparks, and the door fitting so snugly. I'm in hopes, too, that the door will not get out of working order.

I'm trying six different frames—Hoffman, closed-end in tight-fitting case, ditto in loose case, closed end with Hoffman top-bar and bee-space outside end-bars, ditto with half-inch space outside end-bar, and top-bars ⅞ thick, spaced.

Mice in hives. The *C. B. J.* found "scarcely a hive in the bee-house that had not from one to five mice in it." One had 29! Last winter I had all entrances closed with wire cloth, three meshes to the inch, and not a mouse troubled. Mr. Jones found that the mice killed live bees, the pieces still moving.

Pies make trouble, while baking, sometimes, as well as after. The juice boils out and spoils the pie, the oven, and the good wife's temper. To prevent it, make four or five little chimneys, 1½ to 2 inches high, of white writing paper, funnel-shaped, and stick in the top of the pie, somewhat centrally. The juice will be satisfied to boil up into these without running out.

Melilot covered a patch of more than an acre for me, year before last, in pretty fair shape, the bees reveling on it. I allowed nothing to touch it, so that it would be crowded this year. Careful examination shows *not a single stalk* on it. It just can't stand prosperity. If it had been abused by driving over it, it would have been so thick you could hardly wade through it.

Names for frames. I like the names suggested on page 388, *close-end* for those whose end-bars touch throughout; *loose* for those which are not spaced in any way; *Hoffman* for those closed part way down; but instead of *fixed* I should like *spaced* better for all which are spaced by nails, staples, or what not. *Fixed* has already gone into use to include all but *loose* frames.

On page 368 E. R. R. explains why, with loose frames, bees don't make little hummocks of propolis on the rabbets. My bees have never had the explanation, and persist in making such hummocks, no matter how much the spacing is changed. Don't you see, Ernest, that, every time the spacing is changed and the top-bar rests on a hummock, the glue gets warmed up and is squeezed out into the new space?

GENERAL CORRESPONDENCE.

CONTROLLING DRONES, ETC.

DOOLITTLE GIVES US SOME GOOD ADVICE.

A correspondent writes: "I have five colonies of bees—three blacks and two Italians. Would it be well to give the Italians a card of drone comb and put drone-traps on the blacks when the young Italian queens are mating? or is there a better way?"

If the correspondent is desirous of having his queens purely mated, of course he must kill or control all drones from the undesirable colonies. The drones can be controlled with the traps; but in this case you must buy the traps, keep them on the colonies, and furnish the honey necessary to rear and feed the drones, all of which is an expense which would better be avoided. If you think that you *must* raise the drones, and do not wish to buy traps, you can put a piece of perforated metal at the entrance of the "black hives," keeping it there till four o'clock, then remove and let the drones out; and while out, replace and keep the most of them out for evening destruction. This would be about the only way with box hives, unless the trap was used. But for frame hives, much the best way would be to remove all the drone comb, or nearly so, from the black colonies, and replace it with worker comb, and thus you will save all the trouble and cost of producing the drones, and you will rear 50 workers to every square inch, in place of 32 drones, these workers storing honey for you in place of eating it. In any event, you could not be sure of having your queens purely mated unless there were no black or hybrid bees in the woods or any apiary for a distance of four or five miles from you in every direction, which is a state of affairs which does not usually exist in most parts of our country. But for honey-production I doubt whether it would pay you to be too careful to have all of your queens purely mated, for a first cross (or what is more truly hybrids than the general mixture which are called hybrids) gives nearly if not quite as good results in honey as do pure bees of any race. If you were to send south for Italian queens for the three black colonies, and Italianize the blacks before any drones were reared in these hives, you would then have things about as you want them, and that, too, about as cheaply as by any plan I know of. In the above our correspondent should find something to help him out of his dilemma, it seems to me.

IS THE BEE-MOTH LARVA KILLED BY FROST?

Another correspondent writes: "I have read that frost would kill the larvæ and eggs of the bee-moth. If so, what temperature will it take to do it? I have some combs which have been exposed all winter to the cold; but I find worms hatching out in them, or, at least, the worms are at work on them."

It is generally supposed that a temperature of 10° above zero will destroy all eggs and larvæ of the bee-moth; but, candidly, I do not know whether it will or not. At times I have thought that zero and below was sure death to every thing in the bee-moth line; then, again, I have been equally positive that worms which had wintered over somehow in a very low temperature, either in the egg or larval form, were at work in my combs during the first warm days in spring and early summer. Who can tell us something positive about this matter? We know that eggs and larvæ are carried over in a colony of bees or in their combs; and I have thought that these, after hatching into the mature moth, may have found their way to my combs in some way, though I hardly knew how, and that thus I might have been mistaken, and the old book theory, of cold making combs moth-proof, be true after all. Can Prof. Cook give us any light on this?

WHO FURNISHES THE FEED?

"Who furnishes the feed when the apiary is worked on shares, for stimulating purposes, or to keep the bees from starvation? In other words, what is the custom regarding such feeding!" is another question sent in. Well, I do not know that there is any custom. The only way that I know of to govern such matters is to enter into an agreement, explicit enough to cover all cases of emergency, and have it put down in black and white, and then live up to it according to the Christian rule laid down in the good book, "Who sweareth to his own hurt, and changeth not;" for if you go into "bees on shares," some one is apt, as a rule, to have his feelings, if not his pocket-book, hurt. If you have taken the bees this spring, and the owner of them said nothing about whether they had honey enough to carry them through to new honey, and they were short of feed, I should think that he should furnish the feed, were they likely to starve. As for feeding to stimulate, I do not think that it can be made to pay for the feed and time. If you have had the bees for a term of years, and you did not leave honey enough in the hives last fall for the bees to come through in good order to swarming-time, then I should say that you were the one who should furnish the feed. If you were both to share, and share alike in the profits from the bees (the way in which bees are usually let out on shares), then I should say that both of you should bear equally the expense of feeding. But in addition to what I said above about bees on shares, I would now say, *don't.* Far better purchase two or three colonies: work your way up with them as your knowledge increases, thus being your own *man* all the while, than to try to gain a knowledge regarding the business by building yourself up on some other person's property along this line. Almost any other partnership business works better than it does with bees. G. M. Doolittle.

Borodino, N. Y., May 16.

[My impression is, that 10 degrees above zero will destroy every vestige of the bee-moth; and I believe they generally live over, unless so near the cluster of bees that they are kept above this temperature. With us we rarely have trouble until quite late in the season, yet we leave combs exposed more or less every year.—I am very glad, friend D., to have you second our oft-repeated advice about bees on shares. The matter is, as you say, too complicated.]

A. I. R.

BEE-ESCAPES IN FLORIDA.

A VALUABLE ARTICLE RIGHT FROM THE FIELD; BEE-ESCAPES, FIXED DISTANCES, EXCLUDERS, AND THE REVERSIBLE EXTRACTOR REVOLUTIONIZING BEE-KEEPING.

Both the Dibbern and Reese escapes are a success with me. Like others I met with failures when first using them; but a little observation soon put me on the right track. The main secret of success is in the fact that *bees will not all desert their queen or brood, sealed or unsealed;* therefore to succeed with the escape, surplus supers *must be free from all brood, and the queen below.* This can be accomplished to a certainty only by the use of zinc queen-excluders.

The space between the escape-board and the top of the frames below should not be over a bee-space (⅜ inch); for if, as some recommend, a space of one to three inches is left, the bees will cluster in this, filling it with brace-combs, at the same time clustering on the escape, thereby forming a communication back to the supers. To secure the best results, supers of empty combs, or sections, should be placed under the escapes, as the bees are slow in going down in a crowded brood-chamber below—especially in eight-frame hives. I generally place the escape on just before night, and take the supers off by seven or eight o'clock next morning. As a rule there will not be more than a dozen or two bees left in the supers. In two or three instances it cleaned them out completely. Half-depth supers are freed from the bees much quicker than full ones. A free use of the smoker when putting on the escapes will hasten the bees in going below. It takes me about one minute to each hive in putting on the escapes, they being made in a board just the size of the hive; and all there is to do is to raise the super and slip this between; give a few puffs of smoke in the top of the super, and we go to the next. In the morning take your wheelbarrow and wheel your supers, now free from bees, to the extracting-room, where you can extract at your leisure. This is a long way ahead of the old plan of shaking and brushing the bees off each individual comb, with an army of cross robbers following you around in the hot sun all day.

THE GREAT POINT OF ADVANTAGE IN THE USE OF THE BEE-ESCAPE.

A few points of great advantage in the use of these escapes, overlooked by some, are, that, when extracting every week or 10 days, as some do, *you do not disturb the working force of bees in the fields.* This is quite an item; for, oftentimes, by the old way you so excite the bees that it causes them to lose the best part of the day, right in the midst of a good honey-flow, which means 8, 10, or 15 lbs. of honey less. I am confident that large amounts of honey are lost each year in just this way. Who has not seen colonies cluster out on their hives, all day, sometimes longer, just from being disturbed in the way mentioned? When taking off honey after the flow has passed, you avoid all that troublesome robbing, which is sure to annoy one at this season. Again, after using the escapes one season you can not fail to note the change in the temper of your bees compared with what it was when managed the old way.

I would not part with the escapes for a good deal; for by their use one saves three-fourths the labor of taking off a crop of honey.

HOW TO PRODUCE HONEY AT LESS THAN HALF THE COST.

Give me a hive having *frames at fixed distances*, with a plain zinc queen-excluder, these escapes, and a good reversible extractor, and I will show you how to produce honey at less than half the cost nowadays.

BEE-STINGS A FAILURE FOR THE CURE OF RHEUMATISM.

I have been down flat with the rheumatism for the past four weeks, but am able to sit up some. I hope to be out again in the course of a week. Bee-stings for the cure of rheumatism is all bosh. I have been stung thousands of times. The day I gave up and went to bed, more than 50 stung me, so you see it is no cure for me.

Palmetto is just opening; but as I have been unable to attend to my bees, I do not suppose they are in the best of shape to take advantage of it; nevertheless, I will make the best of it. Half a crop from 100 colonies is better than none. A. F. BROWN.

Huntington, Fla., May 13.

[You have given us one of the most valuable and seasonable articles of the season; and there is many a bee-keeper who is craning his neck to see how these "new-fangled things" are coming out. It is pleasant to know that these innovations not only work nicely on paper, but in actual practice. I have thought, for over a year back, that the bee-escape and fixed distances were going to revolutionize present methods in the production of comb and extracted honey; and the way reports are coming in, it begins to seem as if I had not surmised amiss. In fact, it is difficult to see how any one could come to a different conclusion who would be willing to lay aside his old-time prejudices.

We want more reports of the bee-escape, and under what circumstances it will and will not work; for, as Solomon says, "In the multitude of counselors there is wisdom."

Your next to the last paragraph, unless you are an ardent enthusiast, contains an idea that it may be well for some of those who are holding back, to think over and digest a little. Instead of raising such a hue and cry about the low selling price of honey, let us pay a little attention as to how the product may be lessened in *cost*. We need to exercise all reasonable means to keep the price up; but let us not forget that there is a good deal of sense in reducing the cost of an *honest* pound of honey.

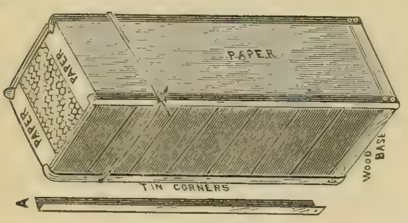
And now, my dear moss-backed bee-keeper, do you observe that Mr. Brown says, in effect, that fixed distances are a success, even in Florida? There have been a few mild hints of late, that they would not answer in the South. Well, perhaps they will not in some places. We hope, Mr. Brown, you will favor us with another article on how you succeed in producing honey at a low cost.] E. R. R.

A CHEAP HOME-MADE SHIPPING-CASE.

ONE MADE OUT OF PAPER, L TINS, AND GLASS.

We do not depend on our 80 colonies for a living; and to lessen their care we run them mostly for extracted honey; but we have shipped more or less comb honey in the past, and have seen a good deal as it arrived on our markets. There are drawbacks to our present system. The cases become very much soiled in transit. If we use small packages, the freight men will see how many of them they can carry; and the consequence is, they often let one drop. Now, are not we as bee-keepers coming to the conclusion that we want small crates, and these packed in a larger box?

I thought we could spare about 300 lbs. of comb honey to experiment on a plan of mine; but after getting it ready we found our home market would have to have it, so we could not ship to the city; and for fear we have no honey next season, and that there is a point in the right direction, I offer it to the public, if it is new.



A CHEAP METHOD OF PUTTING UP SECTIONS FOR MARKET.

We take two tins, ½ inch wide, 13 long, bent to a V shape, as at A in drawing, and nail them with one ⅞ wire nail to the bottom corners of a board, 4¼x4¼x½. Between the two L tins we place a paper 4¼ wide, and long enough to cover the openings of the 1½-in. sections. On this we place 7 sections, then another paper, then nail on two more tins. The paper covers the slotted bee-ways. We now take hold of the crate, slide it partly over the edge of the table, wrap a strong string around, two inches from the open end, and tie tightly. We next set the crate on the wood end, bend over the 1½-inch projections of the papers, slip in a 4¼x4¼ glass, hold the same with one hand, and, with a pair of pincers, close the ¼-inch tin projections over the glass, and it is done.

With practice, the speed that these may be put together with, sections scraped, and the rest in the flat, is enormous. These beautiful crates are to be wrapped in paper and packed with hay in large crates, as given in Gleanings some time back, thus arriving nice and clean. The index section should be no better than the rest, so that the commission man will not need to open them. F. S. Comstock.

North Manchester, Ind., March 16.

[We have sold customers, for several years back, L tins for putting up sections in the manner you describe, although you have brought the method a little nearer perfection than any one else has done so far, I believe. You omitted to say that the L tins should have a V-shaped piece taken out of one end. This will allow the ends to fold over the glass side. I should like to have a report from others who have tried the same plan—how well they ship, and how well they are accepted by the trade as well as by consumers direct.] E. R.

PAPER FOR HIVE-COVERS.

FAY'S CEILING-MANILLA IN SUCCESSFUL USE FOR YEARS ALONGSIDE OF TIN.

Much interest is evinced lately in the matter of light, cheap, water-proof hive-covers. Tin is objected to, both on account of cost and the trouble of getting paint to adhere to it. Why has no one suggested and experimented with paper? Much has been done with this material, and in a diversity of ways, in recent years, all the way from its use in the shape of the most delicate pocket handkerchief, to its construction into boats and car-wheels.

More than ten years ago I saw an advertisement in *Home and Farm*, of C. J. Fay's ceiling felt, or manilla, Camden, N. J.; and having a ceiling from which the plaster was falling, I purchased and applied this paper according to his directions, to the surface of rough, uneven, split laths, from which the plaster was removed, as best it could be, but still leaving a very dusty, unpromising surface for the application of wet paper and paste. The job, however, surprised every one; and the ceiling of that room to-day, after more than ten years, is as smooth and perfect as when new. I have since used it in other work, and it has invariably given satisfaction.

But, to come nearer to the point. Several years ago, early in my bee-keeping experience (those days when I almost had a bee roll-call at night to see whether any of my precious Italians were missing, and the danger of a leak in their hives would keep me awake at night), my Simplicity covers cracked in the sun, and began to leak. So far I had purchased no tin; and, having some pieces of Fay's manilla at hand, I fitted it to the covers just as you do your tin, except that it was first made wet and pliant, then pasted on, and tacked around the corners and sides. After it was dry it was painted two coats, and since that day it has had the same treatment the tin covers have had, and you would have to look very closely to detect these covers from the tin ones. They have never leaked, and, so far as I can see, are as satisfactory as the others.

Now, this is what this manufacturer sells as inside, or ceiling felt; he makes a roofing-felt of still better material, all ready painted, for roofing houses; and I have thought that this latter could be used, not only for the purpose above named, but also, perhaps, in making Ernest's light cases for outdoor wintering; then, if the cases could be so constructed as to nest together when not in use, by having the shape somewhat like some of your honey-buckets, or even like a house-roof, it might prove quite an acquisition in your climate. But as I am totally unfamiliar with this branch of bee-keeping I will venture only a suggestion as to the above material. I am sure it is of very lasting and weather-resisting character. I think the firm is now W. F. Fay & Co., Camden, New Jersey. The cost of ceiling-manilla is one cent per square foot. I inclose a bit of the ceiling, such as I used.

TO STICK LABELS TO TIN.

I have been, like many others, annoyed by having labels come off after using even such glue as cement for mending china, etc. In preparing a lot of one-gallon cans for shipment a few days since, the thought occurred, why not try the plan used in making starters stick to sections? I then rubbed the shiny tin surface briskly with a piece of wax till it began to stick, then put on the label with common mucilage, and it seemed to have the desired effect. I shall try this further; and if it answers it will do away with the necessity of having on hand always a certain kind of glue.

We have been having a fine honey-flow in April and ten days in May—say twenty days—yielding 36 lbs. surplus extracted, very bright, nice honey, per hive. It is coming in slower now, but so thick it will hardly run.

"BLACKBERRY ACID" RECIPE.

To 12 lbs. of berries put 2 quarts of boiling water. Let it stand 48 hours; then put it into a jelly-bag to drip. Do not squeeze. To that quantity of juice, put 5 oz. of tartaric acid. To each pint of juice put 1½ lbs. of white sugar. Let it stand until all the sugar is dissolved, then bottle.

For a drink like lemonade, pour a small quantity into a tumbler, adding water to suit the taste. The same recipe will do for any other berries or acid fruit. This is a delightful summer drink, as wholesome and harmless as your lemon and ice; and, while as nice and refreshing, it can be made from our *own* fruit, when the lemons might be lacking. It keeps indefinitely. Surplus strawberries, raspberries, etc., can be thus made into veritable nectar for the hot dusty days of midsummer, when the bee-keeper comes in tired and thirsty. Try it with your broken ice. C. P. COFFIN.

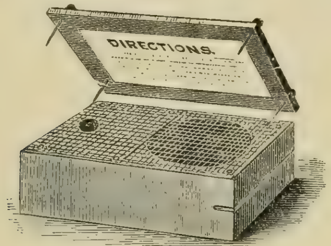
Pontotoc, Miss., May 18.

[Friend C., this ceiling paper, or manilla, has been advised before; but I do not remember of any reports as successful as your own.—Many thanks for the recipe for making a summer drink from berries. It certainly would be a great advantage to us if we could use up our surplus berries on Saturday nights, in the way you indicate. The boiling water could be poured on the surplus berries Saturday night, and then every thing would be safe to set away until Sabbath is over.] A. I. R.

ANOTHER QUEEN-CAGE.

THE DIXIE.

I believe the Dixie queen-cage is little enough and big enough, simple enough, cheap enough, light enough (1 oz.), has rooms enough, and all that. I also think the printed directions about right for the guidance of the timid novice, and the other fellows don't need any. So far as I know, this is the only cage that has contents, breeder's address, etc., printed on it; and I believe the request to the postmaster, "Deliver quick," may at times expedite matters, especially in the country, where the consignee may live a few miles away, and the queen or "word" may be sent by some wayfarer. This printed request, and notice of contents, gives the country postmaster a pointer as to the care he should take of it, and the desirability of effecting a speedy delivery. Some of its best features were borrowed from other cages, especially your Benton cage.



JENKINS' DIXIE QUEEN-CAGE.

While I am about it, I might say I like to see the printed name and address of the individual or firm doing a business, on every letter, wrapper, package, or shipment he, she, or it sends out by mail or otherwise; for, besides the little feeling of pride in it, a knowledge of the sender sometimes enables the postal and railroad folks to correct errors and straighten things that "ain't" straight, and thereby save loss or long delay; and it is a way of advertising too.

Wetumpka, Ala., May 18. J. M. JENKINS.

[On page 440 we spoke of a cage sent out by J. M. Jenkins, and we have since requested him to send us a description of the same, as we thought it deserved more than a passing notice. In response he sent the article above. The method of introducing is the same that we have adapted to the Benton, and has two holes instead of three. Mr. Jenkins' idea of putting directions on the *inside* of the cover, as well as general instructions on the outside, to postmasters and the general public, is very neat. It goes for one cent postage instead of two. It is to the credit of our friend W. J. Ellison, of Stateburg, S. C., for so reducing the size of the *Benton* as to make that also go for one cent postage. By combining the Jenkins and Ellison improvements, we have a cage that is very near perfection.

Verily we are making great improvements, not only in mailing queens long distances safely, but in sending nuclei to all parts of the United States. We have recently constructed a lot of shipping-boxes for two and three frame nuclei, that are less than half the weight of the former ones we used. This is a fact that will be very much appreciated by the receiver, in the reduction of express charges. Why make a customer pay charges on a lot of wood that is unnecessary? We have sent out so far this season, going on 125 nuclei; and we have received a good deal of praise from customers, not only for the good condition in which the bees arrived, but for the neatness and lightness of the package. In a word, our new lot of shipping-boxes is made of light ¼-inch stuff. In warm weather the top and bottom are covered with wire cloth, and the whole thing weighs only 1½ lbs. We are thus enabled to furnish a two or three frame nucleus, the whole thing weighing not over 7 lbs. I might remark further, that any thing weighing over 7 lbs. and less than 10 would have to go at the same rate as 10 lbs.; and that is not all, either. Express charges are much lower for the weight on 7 lbs. and less than on 10 or 15 lbs., where it has to pass through two express companies. For instance, the express charges on 7 lbs. to Salt Lake City is $1.00, while on 10 lbs. it is $ 2.05, and if the package weighs 8 lbs. it goes at the 10-lb. rate, and this you see is equivalent to paying $1.00 for the extra 1 lb. weight, and shows the desirability of reducing the weight of the package.]

QUEENS BY MAIL TO ALL PARTS OF THE WORLD.

WHAT CHARLES BIANCONCINI DID TO BRING IT ABOUT.

Mr. Root:—I read with great interest in the Jan. 15th number of GLEANINGS what you relate in regard to a queen arriving safe in Australia. Up to the present time we have never succeeded in getting queens to Australia by mail, although we have tried a special shipping-cage. But we have frequently succeeded in sending them to America, except a few times when they did not arrive in good condition, for which we could assign no good reason. That they can now be sent almost anywhere in Benton cages is owing not a little to my efforts in that line. About two years ago we began to send queens by mail in Benton cages, when the postal authorities, one after another, refused to accept the queens (except by parcel post) saying it was contrary to orders received from the Postal Minister at Rome. At my request, they replied from Rome that it was on account of an observation made by some foreign state, that these cages were not contemplated in the international postal convention. Quite likely; for at that time the Benton cage was not yet invented. Then I concluded that it would be necessary, perhaps, to get some concessions from the International Postal Commission, who resided in Berne, Switzerland. I wrote to Mr. Bertrand, of the *Revue Internationale*, at Nyon, who explained the matter to, and was seconded by the assistance of, a Swiss apicultural society. I went to Rome in the matter, to speak to the Minister of Postal Affairs. The Marquis of Compans, private secretary of the Minister, a bee-keeper and a farmer, was there. He assisted me with much kindness, heard my arguments, and, in short, promised me his influence at Berne, and wrote, at the same time, to the different governments, and kept his word. You see this affair was so well managed that we can now send queens in Benton cages to various countries, putting on the same postage that would be necessary for letters. I have, then, some reason for saying that I deserve some credit for this success.

Bologna, Italy, Feb. 5. C. Bianconcini.

[We owe you a vote of thanks, friend B., if you are the one to bring about the privilege we now enjoy, of sending queens to any part of the world by paying letter postage. By way of "reciprocity," we wish to do our friend Charles Bianconcini, of Bologna, Italy, a little gratuitous advertising. He probably furnishes nine-tenths of all the queens imported into the United States. He takes great pains in selecting the very best and nicest queens, knowing very well that they are used for breeding in this country; and this may account in no small degree for the excellent qualities shown by the queens from sunny Italy. But, hold! we have just learned, that by the new tariff law queens can not be sent to the U. S. *by mail*, although *we* are permitted to send queens by mail to other countries. This is too bad after all our friend has done for us. As the framers of the law did not anticipate queen-bees, Prof. Cook on our part will probably go to Washington to have the matter made more fair in the near future. See editorials.]

THE PHONOGRAPH.

IN USE BY THE W. T. FALCONER CO.

For a year or two we have been contemplating putting in a phonograph for taking and transcribing letter dictation; but we were informed that it is not a practical success. Very recently, however, on the W. T. Falconer Manufacturing Co.'s stationery we noticed a stamp with the words, "Dictated and transcribed by the phonograph." We immediately wrote them, asking them as to the practicability and use of the Edison invention; and their reply, which we consider of more than general interest, we append below:

A. I. Root:—In regard to the phonograph, we have only commenced to use it; but we think we are going to like it very much. Of course, it requires some little experience to get the best results from it, and all the stenographers have to learn how to use it; but it is not difficult to get accustomed to working it. We use the machine by dictating several cylinders full, and then letting the stenographers take them off in shorthand, and transcribe them. They are usually used, however, by having the type-writer operator take the dictation off direct, without taking it down in shorthand; that is to say, the operator listens for a moment; and what he remembers he transfers with the type-writer to paper, and stops the machine in the meanwhile. This is a good arrangement, as it can be done very easily. There is one little difficulty that the writer experiences, but perhaps you would not have; and that is, a feeling of embarrassment when he is talking. It seems as though he went into the factory to a saw-table, and talked to it in a confidential way.

We believe it would pay you, as, frequently, a person would like to dictate a letter and then leave the office, and sometimes the stenographers are all busy. We find that to be the case with ourselves, and presume it is with you. The matter of expense is very little—only $40.00 a year rent; and we believe that any firm, having as much correspondence as you have, can get that value out of it any way.

We would suggest your writing to the New York Phonograph Co., Buffalo, N. Y., and they will write you in full in regard to it.

The W. T. Falconer Mfg. Co.

Jamestown, N. Y., May 12.

MORE ABOUT THE ISLAND OF MALTA.

THE ORIGIN OF ITS NAME; ITS HONEY RESOURCES; OBJECTS OF INTEREST.

In Gleanings of Dec. 15, 1890, after reading friend Baldensperger's article I wanted to get right up and have my say. The article to me was very interesting, as I am an old resident of Malta. I went to that island under circumstances similar to those of friend B., being on board of a ship with 80 yellow-fever patients, therefore I am pretty well acquainted with the lazaretto. There are some very interesting as well as truthful things said in Mr. B.'s article; but I am very certain that he got the blues bad while in quarantine, and that accounts for the view he took of things while in Malta. First, he finds fault with the quarantine regulations. Why, friend Root, is it not better to be strict in health regulations than to suffer disease to spread, which might cause serious calamities?

Another thing that puzzles me is, how he can construe the word Melita into a word meaning *honey*. Mella means *salt;* but how Melita can be honey, I can not conceive. North of the lazaretto is a village called Sleima, where there are saltworks. I lived in Sleima two years, but never heard any other construction given than that Melita derived its name from the salt found there. If he had gone to Cita Chevicia he might have seen a wonderful spring, its water being carried by aqueduct seven miles to Valetta and its suburbs. Indeed, it is almost the sole supply of water for the island.

Again, "There is nothing to be found but carob-trees." Mr. B., I could take you to very beautiful gardens and orchards where grow figs, oranges, lemons, limes, apricots, pomegranates, palms, grapes, and an endless variety of other ornamental trees, besides large groves of bambo. The story about bees and the manner of keeping them is very correct; also its wonderful production of vegetables. I wonder if he saw the turtle-pond, the eel-ponds, the catacombs, or the church of St. Antonia, or the place of St. Paul's shipwreck, and the place where the footprint is cut in the rock, which a priest will tell you was done by the pressure of Paul's (?) foot when he landed.

It is also true, that there are no venomous reptiles in Malta (there are centipedes and scorpions). In the history of Malta I think it is stated that a snake was never seen on the island, and that the viper must have come from Italy in a dormant state in wood or other material. However this may be, I certainly saw and handled a small snake, about 18 inches long, that I found there; but it was harmless, and I carried it for some time in my pocket, to show folks.

I should like to take friend B. by the hand and have a long and interesting talk about Sicily, Italy, good old Malta, and also of old Carthage, Tunis, Tripoli, Algiers, Tangiers, and Morocco, and a little about that suspension bridge across the Gut of Gibraltar, and then take him once more by the hand, and say, "Lelek, Alla yetek essheba, yuezumuauk plim hobba tua."

WINTER LOSSES.

I have tried to get all the information possible in regard to wintering bees in this neighborhood; and the result is, not enough honey last year to winter, consequently a great loss in wintering. Some have lost all, others half, others a third; the average loss in these parts is about 35 per cent.

Now, friend Root, I must say something about myself. My average of comb honey last year was 18 lbs. per colony surplus, with plenty to winter; and, as usual, I have come out without any loss, so I think in a few days I will write you my method of keeping and wintering bees.

Clintonville, Wis., May 11. Daniel Noble.

[Thanks. In regard to the origin of the name of the island, Mr. Baldensperger doubtless drew his derivation of the name Melita from the Greek word *meli*, meaning honey. Mr. B.'s derivation was a very natural one—more natural, indeed, that the one you propose, though yours, from the Arabic word *mel'h*, salt, may nevertheless be the correct one. We as bee-keepers would prefer to have the word derived from *meli.*] E. R. R.

AN APPEAL

FROM A DEAF AND BLIND GIRL, FOR A LITTLE BOY EQUALLY UNFORTUNATE.

The following, from our old friend and former correspondent, George O. Goodhue, came to hand. The matter it contains is so intensely interesting that we are glad to give place to the whole, although it does not pertain strictly to bee-literature. We know that there is " large room " in the hearts of our bee-keepers for such matter. The article is as follows:

Dear Uncle Amos:—Room, large room, in your big loving heart, and in the heart of Gleanings' readers, for my dear little friend Helen Keller, of Alabama, totally blind and deaf! Nay, please don't pity just yet one of the sunniest and most affectionate natures you ever knew, always cheery, loving, and happy, a joy and blessing to all in spite of her triple affliction, the full magnitude of which it is difficult to realize. Just think of it for a moment! All intelligent realization of what there is on earth, all conception of God and heaven, comes to her veiled mind through her little sensitive fingers alone! I must warn you, however, if you do admit her, that she will surely make room and claim your sympathy for another blind-deaf mute, little Thomas Stringer, of Washington, Pa., whose case she so touchingly pleads in the annexed letter, composed and written entirely by herself.

South Boston, Mass.

Dear Little Boys and Girls:—You will be surprised to get a letter from a little girl whom you have never seen; but I think she will not seem quite such a stranger when you know that she loves you, and would be delighted to give each of you a loving kiss; and my heart tells me we should be very happy together, for do we not love the same things, playful young kittens, great dogs, gentle horses, roguish donkeys, pretty singing birds, the beautiful springtime, and every thing good and lovely that dear Mother Nature has given us to enjoy; and with so many pleasant things to talk about, how could we help being happy?

But now I am going to tell you about a dear little boy who does not know how to be joyful, because he can not hear nor speak nor see, and he has no kind lady to teach him. His name is Tommy, and he is only five years old. His home is near Pittsburgh, Penn. The light went out of the poor little boy's eyes, and the sound went out of his ears, when he was a very small infant, because he was very sick indeed, and suffered greatly. And is it not sad to think that Tommy has no gentle mother to love and kiss her little child? He has a good papa, but he is too poor to do much to make his little son's life happier. Can you imagine how sad and lonely and still little Tommy's days are? I do not think you can, because the light has never gone out of your bright eyes, nor the pretty sounds out of those pretty ears, like pink-white shells. But I know you would like to help make your little new friend happy, and I will tell you how you can do it. You can save the pennies which your papas give you to buy candy and other nice things, and send them to Mr. Anagnos, so that he can bring Tommy to the kindergarten, and get a kind lady to teach him. Then he will not be sad any more, for he will have other children to play with him and talk to him; and when you come to visit the Institution you will see him and dear little Willie playing together, as happy and frolicsome as two kittens; and then you will be happy too, for you will be glad that you helped make Tommy's life so bright. Now, dear little friends, good-by. Do not forget that you can do something beautiful, for it is beautiful to make others happy.

HELEN KELLER.

Lovingly your friend,
Helen Keller.

In March, 1887, only four years ago, Miss Annie M. Sullivan, of the Perkins Institute for the Blind, in Boston, went to Helen's Southern home, and with gentle, patient persistence, sought entrance to her darkened mind through her tiny fingers. The history of her most surprising success is more wonderful to all child-lovers than any romance. In a deeply interesting pamphlet published by Mr. Anagnos, manager of the institute, he thus speaks of her beginning:

> On taking charge of her little pupil (who hopelessly lost all sight and hearing when only nineteen months old) Miss Sullivan saw at a glance that she had an extraordinarily bright child to deal with. The ebulliency of Helen's mental activity, and the outbursts of despair which followed the failure of her attempts to make herself understood by the members of her family, convinced the teacher that there was a tremendous intellectual force locked up and suppressed in a dismal grave, struggling for an outlet, and ready to shatter its barriers. Following the simplest and most direct methods of Dr. Howe (the teacher of Laura Bridgman), Miss Sullivan sought anxiously to find some aperture through which to convey the pabulum of knowledge to a starving soul. Her efforts were rewarded with a speedy and grand success. Helen's darkened mind was reached through the sense of touch, and the little prisoner triumphantly rescued, and at once became a citizen of the world. She is no longer disinherited from her human estate, and treads the earth with buoyant footsteps and a light heart.

Since that time Helen has been under Miss Sullivan's intelligent and devoted care, and at the present writing both are at the institute in Boston.

As already intimated, during the short time of her tuition Helen has made the most astonishing progress—not only reads all books written for the blind, but "her vocabulary has increased to such an extent as to comprehend more than three thousand words, which she can spell without a mistake, and which she uses with a freedom and accuracy not often found in hearing children of her age." She has also learned to articulate, or speak slowly, by placing those wonderful finger-tips upon her teacher's throat and lips, and noting their movements.

A friend in Pennsylvania thus writes me about her:

> Wonderful as are her acquirements, the child herself is still more so. Her natural poetry of mind, her unfailing amiability, her perfect trust and confidence in the good intent of every one, her determination never to see any thing bad in any one, are simply marvelous. To all our family she is dearer than any one outside of it.

Another friend thus writes of her:

> Her little heart is too full of unselfishness and affection to allow a dream of fear or unkindness. She does not realize that any one can be any thing but kind-hearted and tender.

The simple, trustful manner of her appeal for little Tommy will be noticed as showing these traits in her character. As will be seen by her letter, she dearly loves all kinds of pets. This winter her faithful dog, a trusty guardian and affectionate playmate, to which she was greatly attached, was killed under very aggravating circumstances. Though distressed beyond measure at her loss, all she would say about the murderers of her pet was, "They never could have done it if they had only known what a dear good dog Lioness was!"

A short time since, I had the great pleasure of a little visit with Helen and her friends in Boston at the Institute. I found her to be a tall, well-formed, graceful girl, nearly eleven years of age, natural and winsome in her manner, with beautiful brown hair falling in luxuriant curls over her pretty shoulders. Her face lighted up with such a cheerful, animated, and altogether charming expression, that I missed far less than I expected the usual "windows of the soul."

The only time during my visit that I thought of pitying her was after dinner while we were still sitting at the table, all of us chatting together except Helen, who sat quietly and patiently with her touching face in quiet repose, alone in that awful darkness and dread stillness. I could not bear it, and made an excuse for us to rise from the table so we could talk to her. As she chatted on, showing so many pleasing phases of her wonderful mind and character, my feeling of wonderment so increased that it was most difficult to control my thoughts and feelings, and, after leaving, I found ever so many things I had forgotten to ask her about.

She is very fond of flowers, and told me about the different kinds her father had in her Southern home, inquiring if I grew the same, naming and describing very pleasingly, mermets, Marshall Niels, brides, jacqueminots, etc., all of which she knows and can distinguish from each other by their fragrance. Warming with the subject of flowers (and after speaking with gleeful anticipation of the time when she should go into the woods near the poet Whittier's home with her teacher, and gather the spring flowers, many of which she lovingly described) she said, articulately, "Soon they will *burst again* in all their wonderful beauty and fragrance!" unconsciously emphasizing her words by lightly starting from her seat and giving a quick little upward movement of her hands, full of meaning and expression. My eyes failed me for a moment as I thought of the time when this lovely soul would burst its fetters of awful darkness and silence, and, with increased and never-fading beauty and sweetness, evermore bloom in our Father's kingdom.

THE DEAF AND BLIND GIRL AND HER DOG.

Before seeing her I had learned that she was intensely interested in the little blind-deaf mute, Tommy Stringer, of Washington, Pa. His mother is dead, and his father too poor to send him to the Perkins Institute. As soon as Helen learned of the pitiful situation of the little fellow, her tender sympathetic heart could not bear the thought that he should be left to remain in that terrible state of mental darkness from which she had emerged, and which, with just a shade of sadness coming for a moment over her bright cheery spirit, she so touchingly describes.

By her unceasing exertions a fund has been started (to which she has contributed her own spending-money) to bring the little fellow to the Institute. The expense for his care, maintenance, and education will be quite a considerable amount, as it will take some years to teach him, and, as before stated, his father is too poor to bear the expense. Feeling sure that many of the GLEANINGS boys and girls, as well as some of you children of larger growth, would consider it a privilege to aid Helen's unselfish work, I requested her to give me a letter for publication, which speaks for itself in her own words, and which I will leave for Uncle Amos to comment upon.

As I think of this child whose lovely soul shines out so brightly and cheerily, despite those darkened windows and walls of dread silence—at once a gentle reproof against murmuring and repining, as well as a joy and inspiration toward that which is unselfish, good, and true—these words of Bickersteth come strongly to mind:

> On whom not we alone, but all who looked,
> Gazing would breathe the involuntary words,
> "God bless thee, darling!—God be blessed for
> thee."

GEORGE O. GOODHUE.

Danville, P. Q., April 27.

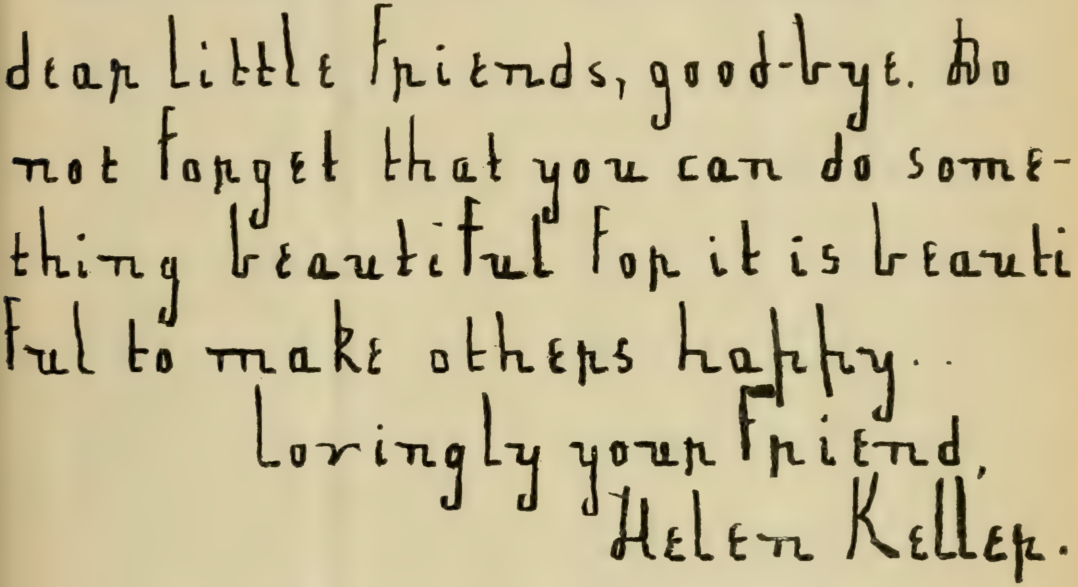
The above would hardly be complete without a private note which our friend Mr. Goodhue sends along; and we are sure he will not object to our making the following extract:

Dear Mr. Root:—How would you like as a text, "A little child shall lead them"—Isa. 2:6? I also inclose you her picture, taken in two different positions, which may please you. Her friends kindly gave them to me, and I then sent to the artist for these for you. If it were not too expensive, it would add very greatly to the interest of the article if you could reproduce one of them in that beautiful soft tint which we so greatly admire in some of the photos in GLEANINGS, and also give in fac-simile characters what you can of her letter. Do you know it took about two hours for her little fingers to form those characters? They can not begin to keep pace with the rapid workings of her wonderful mind. I know your kind heart will favor Helen's unselfish project; will you therefore please receive what may be sent you in this behalf? You might call it, if you like, a GLEANINGS fund. Although already a subscriber, I want to have a share as a GLEANINGS reader as well, and inclose $5.00 for that purpose.

Sincerely your friend,
GEORGE O. GOODHUE.

Danville, P. Q., May, 1891.

[It was a pleasure to have the photos engraved in that beautiful soft tint that our friends so greatly admire; and we have also photo-engraved, as per below, the exact text of the last four lines of her letter, full size.



dear little friends, good-bye. Do not forget that you can do something beautiful for it is beautiful to make others happy..

Lovingly your friend,
Helen Keller.

SAMPLE OF WRITING FROM A DEAF AND BLIND GIRL, 11 YEARS OF AGE.

It may seem like taking a great deal of space; but such a beautiful sentiment from a girl who has been, from babyhood, deaf and blind, and who under the tuition of, we are sure, a Christion teacher, is enabled thereby not only to evolve such a beautiful thought, but to give it to the outside world, we are sure deserves a good deal of prominence. Oh that people who are complaining of the way the world is treating them would read those words over and over, and then contrast their condition with that of little Helen's physical condition!

Many of the older readers of GLEANINGS will probably recognize friend Goodhue as the one who, years ago, did quite a service to the proprietor of the Home of the Honey-bees. The glimpse we get of him in the above is quite in keeping with the former incident. He is never so happy as when helping the helpless; and although I once knew him when he was not a professing Christian, may God be praised for the evidence he gives us now that his hopes are anchored on that faith that goes beyond the limits of this world and this present life. We take pleasure in making the $5.00 that our good friend has sent us as a nucleus to work on,

$25.00; and I hope the readers of GLEANINGS will enjoy assisting in the work according to their means, that our good friend Tommy Stringer may be emancipated from his poor dark prison life in the same way that our young friend Helen Keller has been taught to read and write. Contributions may be sent to friend Goodhue or to us, as the friends choose. We will send the $25.00 right along, and other installments will follow as fast as the amounts will warrant sending a check; and who knows but that Tommy may ere long give us a letter of his own, expressing his thanks for what we hope to do for him? If any of the readers of GLEANINGS are curious to know how this wonderful thing is accomplished, they can get a hint of it by turning to our back volumes, where they will find a description I gave of the methods employed at the Deaf and Dumb Asylum in Columbus, O.] A. I. R.

THE CLARK SMOKER.

FUEL FOR SMOKER.

Friend Root:—I've just been reading your latest "Directions" that go with the Clark smoker, and will indulge in a few comments.

I agree entirely with you as to rotten wood. As to the planer shavings, I have used them a great deal, with and without sawdust, and I am strongly of the opinion that I'd rather leave the sawdust out. It's all right to have the material you have, sawdust and all, but you can't get that at a common planing-mill. The material you call excelsior is excellent. I got some of it from you a year or so ago, and like to have it on hand all the time. It is easily lighted, and lasts well. But it isn't excelsior. The article commonly called excelsior makes very poor smoker fuel. Possibly, combined with something else it might do. You say, "Use *wet* sawdust mixture." For this locality I'd rather have it dry.

Pine cones, where they are plentiful, are good, but they fill up with creosote rather too much. Sound dry wood makes excellent fuel, but it is not easily used in a Clark, and for the Bingham it is so expensive that I prefer planer shavings. I don't mean the wood itself is so expensive, but it is so much labor to prepare it.

Of all the fuel I have ever tried, nothing suits me so well as turning-lathe shavings of hard wood; and of all woods, osage orange is the best I have tried. It is exceedingly hard, and makes the very nicest mallets, tool-handles, etc. If you have none of it about Medina, you would do well to have me ship you a few sticks, unless you can get it nearer.

HOW TO HOLD THE BELLOWS.

You may be right in saying that the valve will be gummed up more if it is held valve upward, but I doubt it. If any one has fairly tried both ways, so as to know which way is best, I wish he would arise and so state.

HOW TO CLEAN OUT THE SMOKER.

You say, "Cut a slender sprout the size of a leadpencil. Trim its surface so it will be smooth. Ram it through the blast-tube, back and forth, until it is cleaned." I don't like that. If the sprout is of a size to go through easily, it is likely to break off in the tube, and then there is a state of affairs. It's some trouble to get and prepare the sprout each time. Sometimes you are where you can't get one; but the worst of it is, that every time you clean it out in that way you push a good-sized chunk of creosote into the bellows. Better have a permanent cleaner that will pull the creosote *out*. Get a piece of heavy wire, perhaps an eighth of an inch thick; bend it into about the same curve as the blast-tube; hammer it at one end into chisel shape, bending up the chisel end about an eighth of an inch or more at right angles, and then you will have a good tool always ready to use. It's just the same as one you used to send out with each smoker, only bent more, and heavier wire.

Marengo, Ill., May 10. C. C. MILLER.

[All right, friend M. We will try turning-lathe shavings. Great quantities of them are burned in our boiler-furnace. But we will stop and investigate, right away. Our turning-lathe shavings are all from hard wood. Our apiarist, Mr. Spafford, however, hangs to the excelsior sawdust that comes out of the hand-holes of hives for smoker fuel. He is now using it with excellent success in the new Hill smoker. Now about that blast-tube. I suspect you rake it out too much. I don't believe we clean ours out more than four or five times a season. Every time you rake it, the worse it makes your bellows. The old small blast-tube we formerly had got filled up, and had to be cleaned nearly every day. The cleaning-implement which you suggest might perhaps be better; but we get along very nicely by using a heavy wire, curved at the right arc; but as a wooden sprout of the right size does nearly as well, we thought that it would answer for the great multitude who buy the Clark smoker—about 20,000 a year.]

LADIES' CONVERSAZIONE.

PUTTING FOUNDATION INTO WIRED FRAMES.

EMMA WILSON TELLS US HOW TO USE ARTIFICIAL HEAT FOR IMBEDDING THE WIRES.

In the division of work in our apiaries it has been my lot to fasten the foundation in brood-frames. When this work is to be done, and I have bent the nails and wired the frames, then I am ready for the foundation. I have usually selected a sunny spot, and spread out my sheets of foundation where the sun could shine directly on them, as a good deal depends on having foundation in just the right condition. It should be quite warm to work nicely. If too cold, the wire will not adhere to the foundation well. If too warm, there is danger of the wire cutting its way clear through the foundation, and then the bees are likely to gnaw holes in it. Especially is this true if the foundation is given at a time when they are not very busy. It is not necessary to have your wire imbedded deeply in the wax. If it adheres firmly, that is sufficient.

We formerly cut our foundation smaller than our frames, leaving a space at the sides and bottom. We found that the bees would not fill out that space, especially at the bottom, leaving a place for the queen to hide, which was very annoying. We now have the sheets a little larger than the frame, they being just the same length, but a little wider, so that we can crowd them in, pressing the edges firmly along the top and bottom bar; for even if you leave it so that it just touches the bottom-bar, the bees will be pretty sure to make a space, which we want to avoid. In this way we get beautiful frames, and I can not see that reversible frames have any advantage, so far as solid combs are concerned.

One cool cloudy day I was obliged to prepare some brood-frames. As I could not have the heat of the sun, of necessity I was forced to find some other way of heating my foundation; so I carried it to the gasoline-stove. I heated the sheets, and proceeded to fasten as usual with the Easterday foundation - fastener. My foundation had been too cold and the wires did not adhere well. I picked up my frame, turned it over, wired side down, and held it for a second over the gasoline. I was surprised to find the wires beautifully imbedded in the foundation, as if they had been made there. I was delighted. Now, if it would only work when no previous attempt had been made to fasten it! I laid my frame on my board, heated a sheet of foundation, and laid it smoothly over the wires, pressing the edges firmly along the top and bottom bar; then, lifting it, held it (wired side down) and moved it rapidly over the gasoline for a few seconds, and found it did the work nicely. If a wire failed to catch, I passed my finger lightly over the foundation above the wire, and it was all right. Usually the weight of the foundation is enough. If you use a gasoline-stove you must work very rapidly or your foundation will melt. I have since used a common kerosene-lamp, and found it worked just as well, only a little slower. Just move your frame over your lamp, following each wire. You can easily see your wire through the foundation, when held over the lamp. Be careful not to move so slowly as to melt your foundation. We think the bees work the foundation just a little better when fastened in this way. Possibly a wood or coal stove might be better than a gasoline-stove or lamp, but I have never tried it.

I inclose a sample of foundation, wired as described. You will see that the hot wire has melted its way into the wax, and, instantly cooling, left the cell-wall perfect. Possibly you may think the wire not deeply enough imbedded; but in actual practice the bees work it all right, even if not done as well as the sample I send you. EMMA WILSON.

Marengo, Ill., May 18.

[After reading your article as above, we went out where they put foundation into frames, and gave directions to have the matter tested at once. The girls tried it and did not seem to make it work, and then I tried it—both with gasoline and the lamp. The difficulty that I experienced was, the foundation becoming soft, would bag down before or about the time it began to adhere to the wire. We have for years been in the habit of wiring our foundation between the coils of steam-pipes before putting it on the wires, after which we imbedded it with the Easterday foundation-fastener. But if I understand you, you made the heat from the gasoline not only warm the foundation, but *imbed* the wires as well, without the regular wire-imbedder.] E. R. R.

BUILDING UP WEAK COLONIES.

MRS. AXTELL DEFENDS HER POSITION.

I think Mrs. Harrison does not have so many weak colonies in the spring as we have, from her remarks in last GLEANINGS, for some reason or other. I dislike very much to have a colony die that comes out of the cellar with a pint of bees. In locations where there is plenty of fall honey always, there are fewer weak colonies in the fall, and consequently fewer weak ones in the spring; but sometimes our good strong colonies dwindle in winter when they have plenty of honey in the hive, and we can see no reason for their dwindling.

HOW TO BUILD UP WEAK COLONIES.

I do not know that I can give any thing new from what others practice. A remark made some ten years ago by a man owning quite a number of colonies of bees struck me at the time as being an unthrifty way of caring for bees. He said it never paid him to bother with weak colonies. Since then he has found that "bee-keeping does not pay," and has gone out of the business.

Building up weak colonies in the early spring is far more difficult than at other times of the year, especially if very weak. From such colonies I would take away all combs of honey, and leave them only one or two combs of capped brood, with a little honey in the corner of the combs. If not sufficient in the corners of the combs I would give them a chunk of honey laid on top of the one comb, or more, leaving only enough combs that the bees could cover, even if it were only one comb. Now lay a piece of carpet or quilt over that colony, and pour into that hive until it is full of dry chaff. That taken from a straw bed is the very best one can get. Enough soft warm quilts will answer. Of course, there must be boards on each side of the brood to hold the quilts out from touching the brood, and I would not open that hive until I could get hatching bees. Then I would look through one or more strong colonies, and find the queen and set her comb back into the hive and take the other combs of brood, or only part of the combs, and brush off all the bees in front of the weak colony, first laying down a piece of straw carpeting or enameled cloth, for the young bees to run up to the entrance on. They must have a smooth track. Brush a little distance from the hive. When brushed off, stir them up some, so that the old bees will fly back to their own hive. Better make each colony strong enough to come through, rather than to fuss with several when none is strong enough. In a few days a comb of brood with honey in the corners may be given them, if you can get it from some strong colony that has not spared bees; or if a good many young bees were given, a comb of honey may be given, as these young bees will not die off until they hatch out other bees to take their place. In two weeks more, probably that weak colony could be given another comb of brood, or empty comb, adding combs from time to time until it can spare a comb of brood to give back to the colonies that had helped it, if need be.

Soon after taking bees from the cellar, all weak colonies should be put down upon what combs they can be crowded upon, and a record kept of the weak and queenless ones; and the queenless united with the ones that are the weakest. If there are more queenless than very weak colonies, I would unite two or more of the queenless with the weak one; or if the queens were poor and not worth saving, I would use such colonies to help build up other weak ones. I think, why people fail in building up weak colonies is because they do not crowd them enough, nor cover them up warm enough, being careful that every little opening is closed, so the warm air can not escape, and the entrance to the hive closed, so that positively but two or three bees can pass in and out at a time; and they should be kept crowded until the middle of May, or later. If the bees are crowded upon a comb, the warmth tends to make them healthy, and the queen will fill every cell in the comb with eggs that is not filled with honey; and one large comb of brood is much better for them than several combs with just a little brood. I do sometimes take out all their combs if they have, say, three combs with brood, and exchange with a strong colony that has its combs filled full of brood and honey, and give the weak one only the one full comb. Of course, the queen can not lay so many eggs as if more combs were given, but there will be more bees hatch out, as all her eggs will be cared for. I think it much safer to give young bees than brood, as the old bees so soon die off in the spring, and let much or some of the brood given them die. How often, when giving a weak colony brood, do we find, when looking over them again, that the eggs have been removed, and the larvæ dried up! whereas, the young bees would all live, and no waste. If such weak colonies are in the sun, they do better than in the shade.

PUTTING HOT STONES TO THEIR FEET.

Should a very cool spell of weather come on, it will pay to heat large stones and lay in the hive morning and evening, care being taken that they are not so hot as to melt the combs or injure the brood—just long enough to tide them over the cold spell. Mrs. Harrison, and others, I know, will laugh at this last sentence; but you will remember that I love to work with bees. No care for them is too much if I can do them good; and it is my life to be out of doors and see my little pets prosper. If the stones are thoroughly wrapped up they will hold heat a long time. We put hot foot-stones to our own feet when ailing, so, also, it is good for the bees, as a colony would not likely dwindle if healthy and warm, unless it starved. Mr. Axtell sometimes feels disposed to laugh too, at so much nursing; but the laugh generally turns the other way, when, before fall, I get from each of those doctored colonies, after they have paid their debts, from 20 to 40 lbs. of honey, besides having a good colony to winter.

NOT PAY THE MEN-FOLKS.

Now, I don't know that such tinkering with bees would pay for high-priced labor; but for us women-folks, who need outdoor exercise, and something to keep us out of mischief, I know of no better employment. I wish it understood, I would not weaken strong colonies to build up weak ones, neither would I so fuss with a colony that had an inferior queen. If I borrowed from a strong colony, I would pay back again so as to have all colonies possible, strong ten days or two weeks before the main honey crop came, as all apiarists who expect a crop of comb honey should have indelibly inscribed upon their minds that it is only the strong colonies that gather the surplus comb honey.

FEEDING IN EARLY SPRING.

I think it a good plan to feed bees just as soon as set out of the cellar, so as to have them hurry up the brood before the old bees die off. Feed a little then, even if they do have plenty in the hives. I like outdoor feeding for that purpose, as it is so like to the bees getting new honey from the flowers that it induces the queens to do their best, and it makes the bees so quiet while we work with them—so like the natural honey-flow.

When using young bees to build up weak colonies I can't remember to have ever had a queen killed by them. Once I thought to introduce a lot of young bees thus to a colony with fertile workers, so as to have the young bees to raise queen-cells; but the fertile-worker colony killed the young bees, many or all of them.

Roseville, Ill., May 9. Mrs. L. C. Axtell.

[My good friend, I did not suppose that anybody besides myself had ever enjoyed working with and helping weak colonies in the spring as I have, until I read your remarks above. I never used the hot bricks, it is true; but I have crowded the bees down on to a few frames, and have taken hatching bees from strong colonies, and I have in that way saved my queens. As I was obliged, however, like yourself, to give *some* of the strong colonies brood or bees back again, I concluded it did not pay very well, aside from saving valuable queens; but I enjoyed seeing them slowly build up, and get on their feet. It surely can be done, but it takes a good deal of time. The experience one gains in such work is, however, valuable. On one occasion I remember of having a queen killed; but the bees I shook down at the entrance were, many of them, not very young. It was the older ones that attacked the queen when they found she was not the one they were accustomed to. I think there are quite a few of our readers who have the time on their hands, and will enjoy building up weak colonies in just the way you indicate, especially where, if they can be kept going just one week more, or sometimes three days more, the warm weather will come with the fruit-blossoms or clover, and they will then be able to take care of themselves.]

A RECRUIT TO THE LADIES' DEPARTMENT. VALUABLE TESTIMONY ON BEES VS. FRUIT.

Mr. Root:—Now that you have kindly opened a side door for the ladies, allow me to enter and contribute my mite of experience. Three years ago my husband and myself and a neighbor, like Rambler's friend Dr. Merchant, had a severe attack of bee-fever. I believe my case was the severest. It has seemed to buzz inside of my head as well as outside. As an instance, I once asked some one to please chase the bees out of the yard. Of course, I ought to have said "chickens." The fever abated somewhat; still, traces remain. As I dearly love all of God's creatures, the busy bee comes in for its share, and a good big share it gets too. I do not like the bees to be slandered, for it vexes me; still, I do not know enough about their habits to be able to defend them on every occasion. Now, perhaps some of our "bee authorities" may be able to explain the following:

A neighbor of ours says he could not be hired to eat honey, because bees are filthy. He says he has seen them eating from the sores on horses' backs. I believe there is a mistake somewhere; still, I can not argue with him, as I am a mere novice in the business. Can any one explain?

Another neighbor says he would not keep bees because they injure fruit-blossoms. But I was a match for that gentleman. I knew my poor opinion would not go for much in his estimation, so I wrote to our State Inspector of fruit-pests, who answered promptly as follows:

"Your favor of the 23d inst. at hand, and contents noted. In answer I will say that I am not aware that the bees injure fruit-blossoms and crop of fruit in the least; but I am confident they are a benefit instead, as they, with other insects, assist nature in fertilizing and thus insuring the crop. James A. Varney."

Elizabeth G. Woodham.

Reuben, Oregon, May 11.

[My good friend, perhaps we should reply to that charge against the bees being filthy. My impression is, that if anybody did really see what you mention, it was during a dry time when bees find it difficult to obtain water. At such times they will alight on any thing that seems to show moisture of any kind. It may also be true, that they require, for certain purposes, decayed vegetable matter. We often see them swarming about the outlets of sewer-pipes. But this is probably owing to the salt that usually gets into slop-drains sooner or later. As horses are usually moving about more or less, I do not think that more than one or two bees could have been guilty of what you mention.] A. I. R.

THE PUMPKIN BUSINESS.

PUMPKIN PIES BY THE CARLOAD.

No, no! I do not mean pumpkin *pies* by the carload—I mean only the pumpkins themselves. And what put me in mind of it was the excellent picture below, sent us by our good friend Cummins, who has a canning-factory. You see, in order to keep his factory going he has to have a pumpkin-ranch, and the picture tells us how it looks.

As you are interested in fine crops, we send you a photo of a section of our field of 24 acres, from which we gathered 391½ tons of as fine pumpkins as ever grew. D. CUMMINS.

Conneaut, O., May 4.

PUMPKIN PIES IN PROSPECT.

By the way, friend C., is there not a chance for getting considerable honey from these great fields? I remember one season, when our bees settled the scales quite perceptibly every morning; and when I followed them to see where they went, it was to a pumpkin-field where the corn had been killed out; and, didn't they make a humming, though, for an hour or two! The honey was not of a very fine quality nor color; but it kept brood-rearing going beautifully during a dearth of pasturage. Above is all that friend Cummins tells us about the picture. Now, as he is a bee-keeeper, can he tell us any thing about pumpkin honey? A. I. R.

NOTES ON THE FIELD.

DR. MILLER HAS LOST HEAVILY IN WINTERING.

I'm not a good bee-keeper. I let bees starve. I supposed last fall my bees had stores enough; but toward spring I found some starving. Instead of stirring them up by feeding all in the cellar, I thought better to let starve what would, and feed as soon as out.

March 30, maples bloom, but I'm afraid it may come cold again. So it did, cold and snow, no warm weather till April 12. Good day to take bees out, if it hadn't been Sunday. Next day good, but postponed taking bees out, for wash-day. Better have postponed wash-day. The 14th and 15th, too lowery; but 16th pretty good. Got Tom Barry to help, and he, with father Huber and I, emptied both cellars by half-past ten. Hives were so light that we each picked up our own hive separately—found it quicker and easier not to fuss with any carrier or rope. There the benefit of cleats came in; for, to carry easily, you must catch at the furthest corner with your right hand, and at the nearest corner with your left hand, letting the hive rest against your right side. The cleat also strengthens the thin piece left by the rabbet at the top of the hive. Emma stayed in the cellar, kept it swept up as the floor was cleared, tried each hive to see if alive, and gave a little boost at lifting hives off the top of piles. Not far from 50 dead, and nearly all of them starved. I'd like to lay it to the winter or something else; but the only thing unusual about the winter was its mildness.

Doolittle's fussy. Now, he would have gone over those hives in the early fall, examined every one separately so as to know just how much honey they had, and then—would have saved his bees. Perhaps I'd better be a little more fussy.

One thing that puzzles me is, that nearly all the loss was in the house cellar, the warmest and heretofore the best cellar. It had the bees from the out-apiaries, and possibly they were not so well provisioned.

A. I. Root once thought I'd better have fewer colonies, and take better care of them. I'm something of his mind, and I can't say I'm so very sorry for the reduction in numbers. At any rate, I don't want to have such hard work as we had last summer, two of us taking care of some 300 colonies, besides the extra work caused by a lot of useless experiments that I always seem to have on hand. This year I'm determined to have it a little easier, divide the bees into three apiaries, remorselessly break up all weaklings, and I shall not feel sorry if the number is reduced to about 200.

April 25.—To-day I finished feeding the last colony. There were so many near the point of starvation that it wasn't safe to wait till all could be regularly fed with Miller feeders, as I had only 45 of these, so we managed to give to each colony at least a little by April 18, putting a section with a little honey under a good many of them. To a few we gave moistened brown sugar, but the bees didn't seem to care for it. I put a dish of it out for them to rob, but they didn't touch it, although they were trying to get into hives to rob wherever they could.

I had intended to feed brown sugar, thinking it cheaper, and well enough for spring; but there was such a trifling difference in price that I concluded to use granulated. I don't understand how a dollar can buy more sweet after it is refined than before, and wish some one would explain it. It took about 1700 lbs. I've been of the opinion that it is better to feed at night, or at least in the evening; but this year after the first day's feeding I fed in the morning. If the feed was given in the evening, they seemed to stop work on it when they thought it was respectable bedtime; and then as the feed was cold, they did not get to work on it very lively the next day. But if the feed was given in the morning, they had it cleaned out by bedtime. It was given nearly scalding hot.

Charlie (my son) happened to be at home, and had all the bees of the out-apiaries hauled away by the time we were done feeding. Fifty were taken to the Hastings apiary, and nearly a hundred to the Wilson. The Wilson apiary always seems to be the best location, although I don't know why, and then there was another reason. If there were more than fifty in the Hastings apiary we should have to go two days to get through them, and two days to go through the Wilson apiary, making four days for both; whereas, by putting the smaller number at Hastings, both apiaries could be gone over in three days.

May 5.—Nearly all the bees have been overhauled, the first time in my experience, I think, when such a thing was possible so early; but it has been almost summer weather, and I think I never knew bees to work so rapidly at brood-rearing. Is it possible that the feeding has made most of the difference? It looks somewhat that way.

In going our rounds we came to the colony whose frames had been reinforced with separators to make them equivalent to thick top-bars. I said, " Well, that's pretty clean work; there are no burr-combs between top-bars and cover, as in other hives, except over one of the middle top-bars;" and inspection showed that one of the middle combs had been taken away, and its place filled by a frame with a ⅜ top-bar. But, if I remember rightly, it was not entirely clear of burr-combs last summer, when supers were on. Certainly thick top-bars form *one* of the elements in securing immunity from burr-combs. C. C. Miller.

Marengo, Ill., May 5.

[Friend M., I admire your candor in telling us the whole truth in regard to your bad losses; but I am very sorry indeed to hear it. A great many have been looking to you for an example, and I really fear that at least some will be induced thereby to give way to the temptation to be slack and procrastinating. Energy and thrift are contagious, and so, likewise, is the opposite. If you wanted to reduce your number of colonies, would it not have been far more profitable to feed heavily in the fall, and then offered those fifty colonies of bees for sale? I am taking it for granted, you see, that a little more feeding would have saved them all. Very likely some starved only a week, may be only one day before you got them out and gave them a general feed. Very likely, bees *have* consumed more this winter than usual. It seems to me it is very unwise to take risks. If you plan to have each colony have from five to ten pounds extra at the time that fruit blossoms, there would be very few starved. And this brings in another reason why I prefer outdoor wintering, as it is so much easier (and so much more likely to be done), making a thorough examination the first time the bees can fly freely. Friend J. A. Green says, in this issue, as you will notice, that his bees in the cellar used *more* honey and came out *weaker* in numbers. It gives me the *blues* when we lose bees by starvation. It is a kind of blues, however, that one *ought* to have, and that *does good* if taken properly.]
A. I. R.

THE PRODUCTION OF COMB HONEY.

DR. TINKER'S METHOD.

Reference was made in my article on page 261, to the fact that, with proper spring management (which was given in detail on page 374), more brood could be obtained by the first of June than could be contained in the ten-frame Langstroth hive by the average colony. As showing what may be done in the line of brood-rearing, I will say, that, last spring I had one colony that had brood in four stories of the Nonpariel bee-hive, and I estimated that there were fully 25 frames of brood on the first of June, or about what would be contained in two ten-frame Langstroth hives. The result of getting so much brood in a colony just before a honey-flow proved what has all along been claimed by prominent bee-keepers. The colony produced something over 90 pounds of extracted honey in one of the poorest seasons we ever had, all of which had been sealed in the combs, and the colony occupied eight stories of the hive, and built out one full set of combs from foundation. The best yield of any of my other colonies did not exceed 25 lbs.; and in every instance the colony having the most brood by June 1 made the most honey. It will be seen, therefore, that the common eight-frame hive is too small to cut a great figure in comb-honey production (or extracted either for that matter), unless it be used in more than one story in the development of brood. But, as already stated, two stories give more breeeding room than the average colony is capable of occupying before the main harvest. The size of the hive, therefore, should be suited to the average colony, which, as stated, is a capacity of about 1600 square inches of brood comb.

Every effort in the development of brood in our colonies should be made up to the time the main harvest begins, when the sections should be put on. It is then advised to practice

CONTRACTION OF THE BROOD-NEST

and limit the queen to one story of the hive by the use of a queen-excluder. Place the case of sections on the queen-excluder; and if there is one or two other stories of brood, set all on top of the case of sections. Should the combs be old and black, I place what I call a *brood-board* between the case of sections and the upper stories of brood. This is simply a thin board cleated around the edges so as to make a bee-space on one side, and provided with a single strip of two-rowed zinc at one side. Mine are made like the wood-zinc queen-excluder, except there is but one piece of excluder zinc, the rest of the surface being closed. In placing brood above the queen-excluder or the brood-board, it should not be forgotten that a ⅝ auger-hole must be made in the front end of the story for the drones to get out. This is easily closed by a common cork when not needed.

The use of the brood-board limits the storing of honey in the upper story as the brood hatches out, so that the energies of the colony in storing surplus are centered in the sections. It also prevents the combs in the sections from being travel-stained except at the extreme outside.

If the bees swarm they are to be managed as set forth in my new book, thus preventing increase. Care must be taken that plenty of section room be provided, else the whole hive is liable to become clogged up with burr-combs. The sections may be removed as fast as completed, and empty ones substituted, handling four at a time in the wide frames; or, if a case of sections is found not quite all sealed up it may be lifted to the top of the upper story until completed, and a case of empty sections put down on the queen-excluder. Thus two and often three cases of sections will be needed. By raising up the sections just before the combs are sealed to the top of the upper story, the brood-board is not necessary; but in this case we shall get the story full of honey as the brood hatches out. This honey, however, will be available for wintering, or it may be extracted. I generally leave it for the bees, but often extract a part of the combs. If we leave it we are always sure of the necessary stores for winter, without fall feeding, provided we leave the queen-excluder on the first story. After removing the sections at the close of the harvest we place the full story of honey down on the queen-excluder. In this manner we compel the economical use of honey left them; but if we take away the queen-excluder at the time of removing the sections, and bring the two or more stories of the hive together, the queen will go into the upper story, and the result will be brood in both stories, and so much honey is consumed that the colony may require feeding for winter in case of failure of fall flowers, which would not be the case if the excluder had been left in place, and the queen confined to the lower story. Bees, to be profitable, must be self-supporting, and we can ill afford to be obliged to feed our bees for winter. But with a large brood-nest full of honey at the close of the harvest, as we have heretofore managed, we are sure to have a great waste of the stores in unnecessary brood-rearing. After the first of June one story of the Nonpareil bee-hive is ample for brood-rearing the rest of the season, even where fall honey-flows are the rule and not the exception, as in most localities; and it will be found that, on the first of October, the colony will have fully as many bees as where the queen is not limited in brood-rearing during the latter part of July and fore part of August, when the colony is disposed to rear almost as much brood as in the great brood-rearing month of May.

On the first of October, or thereabout, the excluder must be removed. Should we forget it we shall be sure to lose the queen, as the bees, in the course of the winter, all go up into the upper story, leaving the queen alone below the excluder.

BURR-COMBS.

One of the remarkable features of this new management is the fact that it almost entirely obviates burr-combs with top-bars of brood-combs one inch wide and ⅜ thick. But if we place a case of sections on the top of the two-story hive, or if, in hiving swarms in a single story as advised with a case of empty sections, we shall be sure to get many burr-combs. After hiving a swarm in a single story, it is best to take a case of sections, in which the bees are well at work, from the parent colony, and place over the queen-excluder on every swarm. If one can not be taken from the parent colony, take one from any other colony in the apiary, taking bees and all, and place upon the swarm just after hiving. As tending to prevent absconding, I regard it fully as good as a frame of brood. Then we can be sure to prevent burr-combs below the excluder, and save much labor besides. When we want to examine the brood-nest we can very readily do so at any time.

I have thus given some of the principal advantages of the storifying hive in connection with the use of a queen-excluder; and, as will be seen, these advantages are such as to give us the utmost control over brood-rearing, the economical use of the stores, and the most profitable honey production. Add to this the comparatively easy management of these small hives, and their superior wintering qualities, it must be granted that we have the Nonpareil of bee-hives. DR. G. L. TINKER.

New Philadelphia, O., May 10.

[There are some pretty things in your hive and system; but there is just one point that I wish to disagree with you on. As to the proper size of brood-nest, some of the largest comb-honey producers in the world agree that the capacity of the eight-frame brood-nest is about right. Not all of them use the same frame; but they argue for that capacity of brood-nest. Let us name over a few of them: Capt. J. E. Hetherington, with his 3000 colonies; P. H. Elwood, with his 1300; J. F. McIntyre, who produces carloads of honey every season; C. C. Miller, a modest bee-keeper who has produced tons of honey; W. Z. Hutchinson; C. A. Hatch; Adam Grimm, who in his day was a prince among bee-keepers, and whose profits from his eight-frame L. hives were sufficient to enable him to establish a bank; and, besides, a galaxy of bee-keepers of lesser note, but who, nevertheless, make their bees pay. All of these use or insist upon the use of a brood-nest of about the capacity of an eight-frame L. hive. When we come to take up the production of *extracted* honey, then we *may* need larger hives.

There was a strong tendency universally a few years ago toward a ten-frame L. hive. You remember how we held out against the 8-frame size; but we had to come to it. Bee-keepers all over the land almost simultaneously reduced by a dummy the ten-frame brood-chamber to eight frames capacity. Doolittle once used the Gallup hive, containing fifteen frames, on the "long idea" plan; but he has now got down to nine frames. You will remember how very many were enthusiastic for this "long idea," but how many are there now?

It is desirable to have all our brood-rearing done in one brood-chamber. If you commence early enough in the season the previous fall I will guarantee that colonies in eight-frame L. hives capacity can be made quite strong enough for the production of comb honey in June and July. Now, instead of reducing the capacity by shallow brood-chambers, and the expense attendant upon the same, why not insert a dummy, and reduce the capacity perpendicularly instead of horizontally? Those kings of comb-honey producers already mentioned, do this very thing. The eight-frame Langstroth capacity of brood-nest, whether it be Langstroth size or not, gives splendid results, and is accepted as the best by the largest and most successful bee-keepers in the world. J. F. McIntyre has been making use of a hive of large capacity; but in a recent article he says that eight L. frame hives even in California give about all the breeding-room necessary for the average queen. Now, why wouldn't that colony that produced for you in a poor season, 90 lbs. of honey, having eight of your brood-chambers, have done just as well in eight-frame L. hives of equal capacity—two or three brood-chambers, as the case may be?] E. R. R.

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RAMBLE NO. 41.

IN NEW YORK CITY.

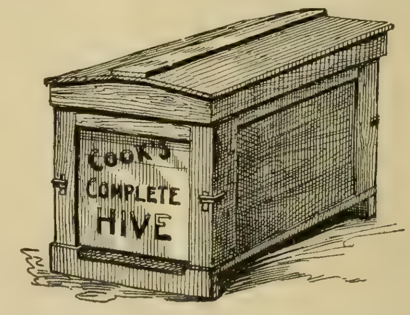
The favoring breeze of fortune again fills the sails of the Rambler's canoe, and he is once more afloat upon the dancing waters. The canoe this time is the splendid steamer Drew, which makes regular nightly trips from Albany to New York. It is not quite so comfortable sleeping on a steamboat as it is in your own room. The continual jar will allow only cat-naps; and to sleep soundly one needs several nights' practice.

We landed in the early morning, and wended our way to the famous hostelry of Smith & McNiel, near Washington Market. In many respects this is a remarkable hotel, located so near the market that it calls to its doors farmers, drovers, and speculators in produce from every part of the country, while its tables feed several thousand per day, and the rattle of dishes hardly ceases during the entire twenty-four hours. In quality and price in its gastronomic features it is unexcelled, and it is one of the few hotels that have honey upon their bill of fare, and should therefore receive the patronage of bee-keepers. It would be more congenial, perhaps, to stop at the Fifth Avenue Hotel; but when it comes to the pocket-book question, you can board here all day for less than it would cost you to board half an hour at the Fifth Avenue. The waiters are very numerous, and well drilled in the manipulation of dishes; and the loads they carry would make the heart of a careful housewife ache with expectations of smashed crockery.

WAITER IN SMITH & M'NIEL'S.

There are but few bees kept in the city, and these are mostly found in the outskirts. I am told, however, that bees do well in the city, and store considerable surplus. The parks supply much pasturage. When we consider that New York is the great American metropolis, and the distributing center of every product and manufacture, it seems peculiar that there are not several supply-houses in the line of bee-fixtures; but for several years there has been no representative house in that line in the city, until recently. A. J. King, in magazine days, was such representative; and among his students here and in Cuba was Mr. J. H. M. Cook, who has recently opened a supply-house as a successor to King, at 78 Barclay St., where nearly every thing in the supply line can be found.

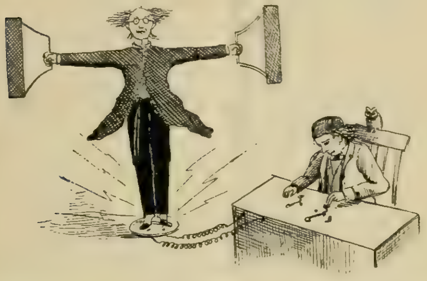
Mr. Cook's apiary and manufactory are about twelve miles from the city, in Caldwell, N. J. In hives the specialties are the Dovetailed, and a hive of his own invention, called "Cook's Complete hive." The latter takes the L. reversible frame, as advocated by Heddon, and is provided with a substantial outer case for packing, with absorbents. I do not wish to criticise Mr. Cook's hive at this time, and will mention only two points. The reversible frame might be dispensed with to advantage. Its boom has passed, and, like a waning comet, it will appear less and less until it finally disappears. The outer case, however, has so many advantages in our rigorous climate, that, when properly applied, it is salvation to the colony. My own experience with outer cases would lead me to adopt them if I were to manage bees in this climate; and I can see their advantages in al-



most *any* climate. The outer-case boom is on now, and I predict it has come to stay. Cook's outer case clamps together at the corners, and is very handy to store away if not needed.

The absence of Mr. Cook from the office was regretted; but a very pleasant half-hour was spent with his partner, Mr. Irving J. Stringham. I suppose Mr. Cook manages outside affairs, and Cooks 'em, while his partner stays inside and Strings 'em.

A new-fangled reversible honey-extractor was hinted at, and we hope it will soon make its appearance, and beat the record. We reviewed extractors generally, and finally decided that the most "un-eek" extractor on the market is the one advertised by Rev. Mr. Seaman. We put our heads together, and made an improvement in the center-post, which can be run by electricity. See illustration, no patent.



CENTER-POST FOR A SEAMAN HONEY-EXTRACTOR—ELECTRIC APPLICATION.

Having considerable interest in the wax-business just now, and knowing it to be used to a great extent in the arts, I naturally drifted into the "Eden Musée," where we beheld the famous personages of the world in wax; and as we pass the various groups they seem like so many living tableaux, representing historic scenes of the past. Though the artist in wax makes a figure appear very natural, there is an unreal fixedness to the features that it has been impossible to overcome. The use of wax for this purpose dates back to a remote period. Not only is the human face divine divinely beautiful, and also fiendish, represented in wax, but the most delicate flowers are fashioned, and seem to be in perpetual bloom. In using wax for all of these purposes there is more or less admixture of other ingredients, as plastic or hard qualities are required. So, while we work with our bees and see them fashion the beautiful waxen cells, we little think of the many uses to which it is to be put by the busy human toilers of the world. I shall speak a favorable word for the Eden Musée, and the world in wax; and it will doubtless be of interest to other wax-producers as well as to the

RAMBLER.

THE SIMPLICITY HIVE AND METAL-CORNERED FRAME.

J. A. GREEN REVIEWS THEIR GOOD AND BAD FEATURES: FIXED DISTANCES.

Friend Root:—You say, on page 378, that the Simplicity hive was planned with the idea that the bees should never have a chance to propolize the inside of a cover. Now, that is all right, and easily accomplished as long as there is no tiering up or interchanging of stories. If the bees are always kept in one story of the hive, or if they are never allowed access to the joints of the upper story or cover, one might keep bees for years in Simplicity hives, and never suspect the existence of their worst fault. But when hives are tiered up two or more stories high, as in extracting, so that the bees can get at the joints between the hives, they proceed at once to fill up the joints with propolis. This softens and runs down by the heat of the sun; more propolis is added every time the hives are separated, until finally the whole of the beveled surface, top and bottom, is more or less propolized, and nothing short of a wagon-jack arrangement will separate the parts of the hive without tearing them to pieces. Then when what was a lower story is put on top the propolis is communicated to the cover, which becomes stuck almost as tight. The beveled stories do not fit together with as close a joint as a well-made square joint, so they are stuck together with so much more propolis, and in such a way that, in time, it becomes almost impossible to separate them safely.

METAL-CORNERED FRAMES.

These are very well for those rearing queens, or who have only small apiaries, and who never expect to move their bees. But with strong colonies devoted to honey production they will, if not carefully looked after, and kept trimmed off, become so attached to each other and to the sides of the hives, that they can not be handled a particle easier than all-wood frames. I have just looked over a lot of colonies on hanging frames, a large proportion of them metal-cornered, which required just about twice as much time to manipulate as those on closed-end frames. Fixed-distance frames are almost free from brace-combs (mind, I say *brace*-combs, which are built between frames, and not *burr*-combs, which are built on top); and on this account, as well as others, they are easier to handle, and kill fewer bees. My frame is a combination of the Hoffman and Heddon. It is a hanging frame, with wide-end top-bars, like the Hoffman; but the end-bars fit closely all the way down, and are held together by a screw, as in the Heddon hive.

My bees wintered in the cellar did not do nearly so well as those outside. More died; they used more honey, and came out weaker in numbers. But the cellar was very warm, 50 to 60°, and they were considerably disturbed by the settling of the roof on them.

The paving-brick which Ernest inquires about weigh about 16 lbs., which is about right.

Dayton, Ill., May 9. J. A. GREEN.

[You have stated pretty fairly and accurately the faults of the Simplicity hive and metal-cornered frame; and mainly for these reasons we decided to abandon them for a hive and frame for the general bee-keeper. You are correct regarding fixed frames, and their immunity from *brace*-combs; and with the right kind of top-bar, a good big inch wide, ⅝ thick, there will be no *burr*-combs. Your distinction between the two kinds of nuisances is well drawn. Say! I am very anxious to know more about that closed-end frame with Hoffman top-bar. You know Dr. Miller is leaning pretty strongly toward such a frame. I hope you will tell us more about it, and the reason why you decided to adopt such a frame. As many of our readers may not know exactly what it looks like, if you will send us a sample by mail we will have it engraved. The Hoffman top-bar is a good thing, I am satisfied, either with partly or fully closed ends; and, to adopt a favorite expression of Mr. Heddon (although *he* may not adopt the article), I believe it has "come to stay." You did not say whether the closed ends mentioned were to be close-fitting, or to have a bee-space back of them—that is, between them and the end of the hive.] E. R. R.

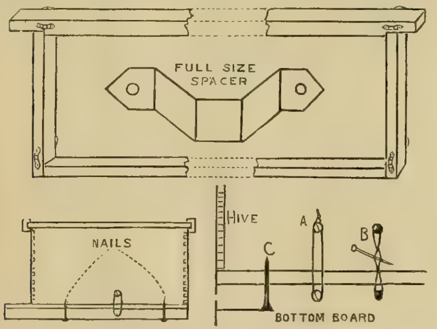
[Friend G., perhaps I should defend the Simplicity hive, as it is a child of mine, and has been many years in use among the people. I know there is trouble with propolis when the hives are tiered up, and I wondered that you said nothing of the remedy that is quite extensively in use—rubbing tallow on every part of the hive where you do not want the bees to put wax and propolis. It is very quickly done; and when the wood becomes soaked full of tallow, as it does in warm weather, the bees "can not make their putty stick," even if they try ever so hard. I know it is often neglected, even when the owner has discovered that it answers the purpose fully.—I became satisfied, a good many years ago, that the metal-cornered frames did not work nearly as well with strong colonies devoted to the production of comb honey.]

A. I. R.

A LETTER FROM NORWAY.

A SUGGESTION IN REGARD TO FIXED FRAMES AND MOVABLE BOTTOMS.

I have read Gleanings with great interest for some time, and I am glad when it comes. As "fixed frames" is becoming a burning question, I thought you might perhaps like to see a device which some here in Norway are using.



You will observe that you, in your factory, with your perforated-zinc machine, have thousands and thousands of these pieces of zinc, which can easily be utilized as distance-keepers. They are to be nailed, eight to each frame, as in the figure. Reversible bottom-boards would be a desideratum for wintering in chaff hives, where the Dovetailed hive and another case are used. But I should like to give my learned friend Dr. Miller a little device whereby he could leave out his screws. It is certainly true, as Ernest suggests, that there would be a big hole where the screw comes in. My device is shown in the figure. The wooden nails (or pegs, rather) are of hard wood. Fastening bottom-boards can be accomplished by the use of iron wire and a nail, or two screws or nails. If you use screws, then only a ring of wire is necessary. I think you can fasten it very closely by twisting the wire at A. When once in place, only take out and put in the screw. The nails C will prevent sliding.

Engvald Hansen.

Aamlid, pr. Tvedestrand, Norway, Jan. 14.

[Distance spacers, or keepers, can be used as you suggest. The objection to all such metal spacers, however, is, that they interfere with the uncapping-knife. Just how far this is true, we are unable to tell from experience, although we suspect that it exists more in imagination than in reality. While nail spacers would be positively bad, any thing with a beveled surface like your spacers might not be objectionable at all. This thing is certain, however, that wooden projections, as in the Hoffman frame, can not dull a keen uncapping-knife. Hive-bottoms can be fastened on as you suggest; but a couple of wire nails are as good as any thing that can be had, and they do not make large holes either. All that is necessary when it is desired to remove the bottom is to insert a strong screw-driver or other implement into the entrance and pry the body off from the bottom-board. If the nails are not too long, this can be done very easily. The most that is desired is to keep the bottom-board on when carrying to an out-apiary on a wagon, etc. Your plan, however, with wooden nails and twisted wire loops, might do very nicely.]

E. R.

SUCCESSFUL HATCHING OF CHICKENS OVER A GOOD COLONY OF BEES.

HOW 'TWAS DONE, AND THE VALUE OF THE EXPERIMENT.

For the information of your correspondent, page 229, allow me to say I have hatched chickens in the manner he suggests. About ten years ago it occurred to me that the warmth of a strong colony of bees might be utilized for this purpose, and I constructed a frame wide enough to hold a dozen eggs on three shelves. The entire frame was covered with wire cloth, and filled and placed in the center of the hive, in the midst of the brood. With fresh eggs none were hatched; but taking eggs from a hen that had set on them a week, a very fair hatch was obtained. My experiment convinced me that, while it would not be practicable to make a perfect incubator of a hive of bees, they might be made to so far supplement the efforts of the "old hen" that one hen and four hives might hatch four broods of chicks. This is a point of some value, as bees become strong with us early in the spring, at a time when we want to raise early chickens, and the hens are not very prone to sit.

FRAMES SPACED WITH TACKS IN SUCCESSFUL USE FOR 15 YEARS; NOT PRACTICAL FOR EXTRACTED HONEY.

As to fixed distances, for 15 years I have used a frame spaced with large tacks on edges, sides, bottom, and top, driven in far enough to allow a bee-space all around. The frames rest on the tacks, and are invertible; and while not handy for the extractor, they work very well for comb honey; and as I move my bees a good deal, I could not use a loose frame.

Wildwood, Fla., May 4. A. A. James.

[Friend J., chickens have been hatched entirely by the heat of a cluster of bees. An account of it was given in our former volumes, some years ago. It was, however, decided at the time, that a sitting hen could furnish the heat cheaper than a colony of bees, and I think experimenters will find such to be the case at present.]

ARE QUEEN-EXCLUDERS NECESSARY FOR COMB HONEY?

AN UNUSUAL EXPERIENCE.

On page 380, May 1, you state that queen-excluding honey-boards are entirely unnecessary in the production of comb honey. I have just gone over 50 hives from which I left the queen-excluding zinc. On the 50 stands I secured 3 good sections. All of the others had more or less brood. I cut out the brood, returned the supers, and the bees have since cleared out all of the remaining honey in the sections;

so I lost my first crop of honey through not using queen-excluders. My supers were of the T pattern, filled with 2-lb. V-groove sections, with ½ to ⅜ inch space between frames (8), and the bottom of the sections. E. H. SCHAEFFLE.
Murphy's, Cal., May 11.

[Your experience is peculiar and phenomenal —especially so when those extensive bee-keepers, Hetherington, Elwood, Dr. Miller, and, I believe, J. F. McIntyre and L. E. Mercer, of your own State, produce good clean comb honey without queen-excluders. Two-pound sections would be a little more inviting for the queen to enter than the one-pound. Either you contract your eight frames down to three or four, or else you have queens more prolific than we usually have. There is some screw loose somewhere. Will some of our large comb-honey-producers who do not use queen-excluders please tell where it is?] E. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

DOOLITTLE'S ARTIFICIAL QUEEN-CELLS; A GRAND SUCCESS.

I have tried Doolittle's plan of rearing queens in upper stories of hives over an excluder, and the plan has worked like a charm. I never saw nicer and more uniform queens. I have had a little over 75 per cent of cells completed, and in one instance I got a queen to lay in 9 artificial cells out of 16 placed in the center of a colony just about to swarm. Those who have never been able to get the plan to work, I would advise trying a colony of Carniolans; for, of all the bees to build queen-cells, they beat any thing I have ever seen. GEO. JAMES.
Sydney, Australia, May 1.

TO TELL WHETHER WAX IS ADULTERATED OR NOT; ANOTHER WAY.

Take wax of known purity; make it into a dense ball by rolling it between the fingers. Be sure there are no air-holes inclosed; then drop it into alcohol diluted with water until the wax will come but slowly to the surface. Adulterated wax, if dropped into the same diluted alcohol, will either sink or come to the top in a hurry, depending on the substance with which it is mixed. H. FITZ HART.
Avery, La., May 16.

A GOOD REPORT OF THE MANUM SWARMING-DEVICE.

Friend Root:—I have just had a swarm come out—the first of the season, so far as I know, around here, and I successfully tested the Manum swarming-device that I purchased of you last winter. It worked to a charm, and I now and here wish to thank Mr. Manum, through GLEANINGS, for so successfully effecting the hiving of a swarm that perchance alights a little too high for convenience. As I came to dinner, my wife said there was a swarm on an apple-tree in the orchard, pretty high up; but she said, "Come in and eat your dinner before you hive them." Well, I did. I always have to do as she says; and then I went out to see the cluster. They were about twenty feet from the ground; but I took my wire basket, Manum's swarming-device, and, with a long pole, easily reached them, scooping in most of the bees. I lowered the basket and shut them in, leaving the basket under the tree. The whole time did not occupy five minutes. Then I had to go to the office and attend to business. I returned a few hours later, and found all the stray bees assembled on the outside of the basket, which I took around to the hive, opened the top, put the hive over it, and, with a few puffs of smoke, they were running into the hive like chickens under a hen.

Bees did well in this vicinity the past winter; and now with the fruit-bloom they are basking in prosperity. It is very dry just now, but every thing points to a good honey season. The white clover is creeping along fast, and will be in bloom almost before the apple-blossoms are gone. L. G. DUNHAM.
Attleboro, Mass., May 15.

[Of all the machines we ever tried, the Manum device is a long way ahead.]

WAX MEALY, AND THE CAUSE.

I have a lot of wax, made from trimmings of foundation, that has become soft and mealy, apparently from combining with the soap and starch used in the foundation-mill. Can you inform us how to improve it?
Lisbon, Fla., May 2. W. R. GARDENER.

[We have had, at different times, considerable trouble with this same thing you describe—mealy wax that seemed to be pure beeswax, but which looked like Indian meal, and no amount of melting would get it back into its soft condition. Dadant has said that the solar wax-extractor would render such wax; but I am ashamed to say that we have not tried it.]

THE QUINBY FRAME A BEE-KILLER.

Allow us to differ with you widely in regard to the advantages of the closed-end frame. To us this frame is a step backward, decidedly, and we think Dr. Miller would say the same. It does not matter how promptly Elwood and others handle their bees, they would handle hanging frames just that much faster. We occasionally find men who prefer the box hive to the movable frame, and who claim easier manipulations with it; but one swallow does not make a summer. We have had closed-end frames; we have seen such men as Axtell handle them, and we must say that we never could see how any one would ever drop the hanging frame for such bungling bee-smashing implements. We do not like to discuss the hive question, because every man has his pet, and succeeds best with it; but we are not of opinion that all pets will suit. C. P. DADANT.
Hamilton, Ill., Apr. 11.

[The old original Quinby hive (this is the one we believe the Axtells use), may be a bee-killer; but the Hetherington-Quinby avoids bee-killing. Elwood handled these frames just as fast, I am sure, as we do the loose frames. Hetherington, you know, has tried thoroughly both kinds of frames. The Hetherington-Quinby hive is a big improvement over the original Quinby hive.]

NOTHING BUT CELLAR WINTERING FOR DAKOTA.

Bees were taken from the cellar to-day; temperature nearly 80°. The hives were heavy; only a few dead bees. I paid hardly any attention to them after the 12th of October. I had the entrance open, and honey-board slid back ¼ inch on top for ventilation. When they wanted to come out in the dark cellar a little, no one hindered them. The temperature in the cellar ran about 42°. Seven months may seem a long confinement without a flight or a cleanse; but if we avoid spring dwindling they must stay in until there is work to do. The currants and plum-trees were in bloom, so you see they

had plenty the first hour, and this is how I learned to avoid spring dwindling. One swarm, according to the scales, lost 10 lbs., so I rely only on cellar wintering here.
Canova, S. D., May 8. L. R. Hillman.

JAPANESE BUCKWHEAT FOR THE MOUNTAINS.

I sowed two pounds on the 11th day of July, and saved 2½ bushels of seed. How is that for the mountains? I am well pleased.
Ezel, Ky., May 2. J. G. Nickell.

REPORTS ENCOURAGING.

Bees are in the best of condition—very strong; white clover promises to be the best crop we have had for a number of years. J. J. McCoy.
Mt. Erie, Ill., May 11.

HOW THE BEES WINTERED.

Bees wintered in fine shape; never saw them in as good condition so early in the season.
Calla, O., May 2. R. L. Templin.

315 COLONIES IN EXCELLENT CONDITION.

I have 315 colonies of bees, and they were never in better condition at this time of year; abundance of stores, strong in numbers, and the finest prospect of white-clover bloom.
Owensville, Ohio, May 3. J. B. Rapp.

A GRAND SEASON.

I have had a grand season. From one colony I have received 210 lbs. of honey surplus, and from another an increase of nine, with over 400 lbs. of honey besides. John S. Rutter.
Armidale, N. S. W., Apr. 3.

BEES BOOMING IN TENNESSEE.

Bees are booming here. I had five good colonies and two weak ones last spring. I got 1050 lbs. of good honey, and increased to 14 colonies. I disposed of two colonies. This spring I have already had six new swarms, and the bees are strong. I lost none last winter.
James A. Lyon.
Clarksville, Tenn., May 11.

FORTY POUNDS OF HONEY PER COLONY IN SOUTH CAROLINA.

My bees are doing well. So far they have gathered about 40 lbs. of surplus honey each, to date, chiefly from the poplar and blackberry. If the honey-flow continues three weeks longer it will be the heaviest crop we have had since 1878. The losses from winter and spring dwindling are about 20 per cent, so far as I have learned, in this section. Few swarms yet.
Falfa, S. C., May 4. G. D. Mims.

BEES IN THE BEST OF SHAPE, AND HONEY IN SECTIONS FROM THE DANDELION.

Bees are in the best shape here this spring that I ever saw them at so early a date. We have 31 almost strong enough to swarm. They worked so strong on the dandelion that they began to store honey in the sections. They were my best Italians. We have hundreds of acres of the dandelion around here, as thick as ever you saw white clover, and the honey is as clear as white clover. David Lucas.
Jewett, O., May 12.

[Friend L., we once had dandelion honey stored in sections; but it was not very good honey after all. I thought of it when reading Dr. Tinker's article about his colony that was made to produce such an enormous amount of brood. Ours was one of that very kind. They were in one of the "long-idea" hives. By feeding them up with care, we might have got them almost up to the swarming-point before the apple-blossoms came out. If we had colonies strong enough, early enough, I think we might often get honey in sections, not only from apple-blossoms, but even from dandelions.]
A. I. R.

AUSTRALIA; A GOOD HONEY SEASON REPORTED; FROM 200 TO 400 LBS. PER COLONY; FOUL BROOD DISAPPEARING.

The honey harvest of this colony has been good for the present season, and the average gathering large. Under any thing like good management the extractor has given a return of 200 lbs. per hive, while odd colonies have gathered 400 to 500 lbs. Thousands of tons of magnificent honey have gone to waste. The writer has lately traveled for days through forests of trees in bloom, and not a bee to be seen. My own bees have been storing in sections for the past six months, and are still at it. This order of things will probably continue for another month until wet weather shuts them in for a few weeks, after which spring approaches and a fresh season begins. We have no wintering problem to contend with here. Box-hive men use gin and kerosene cases chiefly for hives. These stand out generally in the open air on an old bench, all the year round, with possibly an old rotten bag thrown over the top to keep the weather off.

Foul brood has given but little trouble this year; and, provided the honey season were always good, it would be of but little consequence. Very many bee-keepers have reported well of formic acid as a curative agent; but it needs the confirmation of a longer trial, and under other circumstances than that of a good honey-flow. Leonard T. Chambers.
Melbourne, Australia, Apr. 17.

REPORTS DISCOURAGING.

BEES NOT WINTERED WELL.

Bees have not wintered very well in this locality. Several small bee-keepers have lost all their bees. We had three swarms a year ago. We fed them in the spring and increased to seven, but did not get a very large surplus. We wintered in the cellar, and have not lost any. We are feeding some this spring to get them to rearing brood early. The weather here has been quite cold lately for the season.
T. A. Hoose.
Mt. Vision, Otsego Co., N. Y., May 10.

A HARD WINTER ON BEES.

I wintered 93 swarms out of 107 put into the cellar. I lost all of my light swarms. The 93 swarms are in good shape except 3 weak ones. I took them out of the cellar the 16th of this month. It has been a hard winter for bees around here. One man had about 150 stands, and lost over half of them. Another 14, lost 9; another 70, lost 30; another 6, lost all; another 4, lost 3; another 60, lost 10; another 10, lost 7. That is all I have heard from. Quite a number more keep bees around here. My cellar kept 44° from the time I put the bees in until three days before I took them out, when it was 47°. I got 2538 lbs. of honey last year from 47, spring count. I increased to 118. I did better than any of the rest of them around here. The bees have carried in honey for five days, but I do not know what they gather it from.
Dover, Mich., Apr. 27. A. N. Whitlock.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 186. *I have all the bees I need, and don't care to sell any. 1. Shall I try to prevent swarming by cutting out queen-cells or some other plan, or shall I let them increase and then double up? 2. If the latter, shall I double up fall or spring?*

As a rule, prevent swarming; but there may be exceptional locations.
New York. C. P. H. Elwood.

Keep them in check by returning after-swarms, and, if necessary, double up in the fall.
Illinois. N. W. C. Mrs. L. Harrison.

I prefer to let them increase and double up in early spring; but this may not be best in your locality.
Louisiana. E. C. P. L. Viallon.

I can not answer this question without knowing about your climate, honey resources, the blood of your bees, etc.
Michigan. S. W. James Heddon.

1. I should prefer to let them increase and double up. 2. Double up light and queenless colonies in the fall; full ones just before the next honey season.
Ohio. N. W. H. R. Boardman.

Double the swarms as they come out, for a double swarm will store much more surplus honey than a single one. If more doubling is needed, do it in the spring, two or three weeks before the honey harvest.
New York. C. G. M. Doolittle.

1. I would prevent swarming. 2. If you allow increase, you can double up both fall and spring by doubling up enough in the fall to make all strong for winter, and in the spring double to make all strong for the harvest.
Vermont. N. W. A. E. Manum.

Prevent swarming, of course. You can do this by giving the colony more room when the breaking-out of queen-cells would not amount to much. I prefer doubling up just before the beginning of the honey season.
Ohio. S. W. C. F. Muth.

I count it more satisfactory to let them swarm, setting the swarm beside the mother-colony. When the new queen begins to lay I destroy the old queen, and set her hive and bees on the mother-hive for a super, except that I keep some of the best ones until fall, to replace any that may fail.
California. S. R. Wilkin.

If you raise extracted honey you need not have more swarms than enough to make up for winter losses, if your hives are large, and you keep the bees well supplied with empty comb. If you raise comb honey we would advise the returning of swarms 48 hours after hiving. Cutting out queen-cells will do no good.
Illinois. N. W. Dadant & Son.

I should say, some other plan. Give them plenty of air, room, and, in extremely hot weather, shade; if this is done before they make preparations to swarm it will frequently prove sufficient. If this does not prevent swarming, and you do not wish increase, let them swarm, removing to a new location, and give them all of their frames the same day or the next. Bees do not always swarm when they start queen-cells.
Wisconsin. S. W. S. I. Freeborn.

1. A tough one. If swarming isn't such a bugbear to you as it is to me, I think I'd let them swarm, and then double up; but I'd keep trying the other way too. 2. Both. Double up in the fall any thing that you fear will not winter well, and then in spring unite the weakest till you reduce the number sufficiently.
Illinois. N. C. C. Miller.

1. There is no better plan for keeping down increase than to run an apiary for extracted honey. You can keep just the number of bees you want. But for comb honey I would allow a moderate increase, and double down to the number I want in the spring. 2. In the spring, every time.
New York. E. Rambler.

If you have any simple and practical plan of preventing swarming, follow it, and tell the rest of us how it is done. Cutting out queen-cells is a very poor way. Double up in the fall until your colonies are all good ones. If you still have more than you want, unite them late in the spring.
Illinois. N. C. J. A. Green.

This is a sticker. We are in your boat. We cut out queen-cells, but depend more on caging queens. We make all of our swarms by division; after this, when we get more bees than we want, we kill off the overplus in the fall, and keep the combs over to use the next year. If I had any doubling up to do I would do it in the fall.
Wisconsin. S. W. E. France.

I should say, let them swarm. I would have the queen's wing clipped, and catch and kill her unless I had use for her. Of course, the swarm will go back; but before they do this I would open the hive and destroy *surely*, or remove, all but the best queen-cell. Put on sections at once, and the swarming will be cured, the harvest large, and all colonies requeened.
Michigan. C. A. J. Cook.

Try "some other plan." I raise extracted honey mostly, and my plan is to let the bees swarm, and hive them in a new hive on the old stand, giving them five or six empty combs, or frames with wired foundation, and two or three combs of brood from the old hive, after having made *sure* that all queen-cells have been removed; the remaining combs to be given to other colonies, or placed in a super, after queen-cells have been removed. 2. Doubling up in the spring has been a failure with me.
Ohio. N. W. A. B. Mason.

1. Yes, try it—and the other plans too. If you have a locality that stimulates excessive swarming you will not succeed; but by ascertaining the facts yourself you will feel enough better satisfied to pay expenses. 2. When you get ready to balance off increase by uniting, do it *both* fall and spring. That is to say, do most of the work in the fall; but leave yourself with colonies enough so that a considerable further reduction of weak and queenless stocks can be made in spring.
Ohio. N. W. E. E. Hasty.

[The general testimony seems to be in favor of preventing swarms as far as you can: then doubling up in the fall as far as seems advisable, and still further doubling up in the spring when circumstances render it advisable. It is interesting to note that Dadant & Son say that "cutting out queen-cells will do no good;" and J. A. Green indorses their view by saying, "Cutting out queen-cells is a very poor way." There is one other way of reducing the number of your colonies when you have more than you want. I am a little surprised that Dr. Miller did not touch on it. He can not claim, however, to be the *inventor* of the idea, for it is very old. It is very simple and easy. It is, briefly, letting them *starve* during winter. Some think it is better to let them starve in the cellar than outdoors. It certainly would be a little more trouble, but it *might* have its advantages.] A. I. R.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

TOOLS FOR MARKET-GARDENING.

The incident mentioned in the Home Papers of this issue has suggested that our trouble in regard to tools may be somewhat obviated by a better system. We have now about 20 acres devoted to market-gardening, and the weather and other circumstances often render it important to drop one job and take up another very suddenly. Every little while an ax or a spade or a hoe is wanted badly. We have a regular tool-house, such as Terry planned; but it is a great nuisance to carry the tools back to the tool-house every time we are done using them. Last Saturday we were making some improvements in our swamp garden, and a lot of men and boys were at work there with at least a dozen different tools. Now, during weather such as we were having then, there is no need at all of bringing the tools home at night; in fact, we did not want them returned to the tool-house until the job was finished. But the boys and other hands annoyed me constantly by bringing home the tools nights. The result was, the next morning several men would go up to the swamp, without sufficient tools to work with. Then some one would remember that a lot of tools were used in setting out basswood-trees down by the carp-pond, and so he started out, a quarter of a mile away, after them. When he got there he found these tools had also been carried up; and as it was a new hand that did it, he put them in a new place. Then a general hunt ensued. While "a place for every thing and every thing in its place" is an excellent motto generally, if carried out literally it frequently makes a lot of trouble. If I am on hand when they stop work I can decide whether the tools are to be left where they are until morning, or carried to the tool-house. Now, if we have this kind of trouble with hoes, spades, and shovels, it is a worse trouble still when it comes to wheelbarrows, plows, harrows, and cultivators. You may say that each workman should have his own tools, and make it his business to take care of them. Well, even this makes trouble if you undertake to follow it literally. Very few workmen will take care of a tool, or keep it in order, unless he *owns* it. We have a few men who have tried owning their tools; but this very thing very often makes trouble. This workman can not always work with *one* tool, therefore he must put away every tool as soon as he changes to some other one, or somebody will get hold of it. If a spade happens to be wanted for use a few minutes, and one is seen standing up by the fence, it seems rather hard to think it can not be used because it is the property of Mr. so and so. Peter Henderson says that, with their high-pressure gardening, with soil manured up to its highest notch, it needs pretty nearly *a man to the acre* during the busy season. Well, to provide 20 men with suitable tools at every step and every stage is quite a complicated problem. We can not afford to have experienced men traveling here and there after tools; neither can we afford to have twice as many tools as are really needed, just to save this traveling.

Another thing about traveling around after tools is, that thoughtless hands will walk over the ground when it is too wet to be stepped on, and thus do considerable injury. A good many boys (and some men), in going for a tool will step on valuable plants, and do them injury. One of my greatest trials is to educate our boys so that they will not tramp on one kind of vegetables while they are gathering or caring for another kind. You may say you would start such boys for home in double-quick time. Hold on, my friend. Suppose this boy has a widowed mother, and the only opening to keep her from suffering and want is through this boy's labor and skill. In that case, would you not take time and pains to teach him? To be sure, you would. Besides, the boy who steps on every thing before him and behind him the first week he comes to work will soon be a valuable hand if you teach him kindly; and as years pass on, if you and he hang together he *may* turn out to be one of those expert, *finished mechanics* I have alluded to in the present Home Paper. I have seen it done several times, right under my own eyes; and the sight of such a boy, or man, if you choose, trained to work with care and accuracy, and to be *master* of his calling, is worth more to me than to look on the most splendid crops, or to see the cash handed over from a willing purchaser. Well, then, what about the tools? I will get to that presently. Perhaps no other one thing is so often called for all over the grounds as cheap market-baskets—peck and half-bushel. The men are out in the field somewhere, and there is a sudden call for spinach. If they had a basket I could call their attention with a whistle, and then tell them to send up a bushel of spinach by one of the boys at work with them. Again, when they are coming up to dinner they could bring a basket of onions or rhubarb just as well as not, if baskets were in readiness; and they are so constantly needed, that, during the summer season, we keep baskets scattered all through the grounds. A boy takes as many as he can carry, and scatters them around. It is true, the sun and rain spoil them somewhat; but they cost only three or four cents, so the basket is worth less than the time of going to the market-house for one.* It is a great deal the same way with a hoe. A man finishes a job pretty near to dinner time. If he had a hoe he could put in the time profitably in a good many places; but the hoes are away off in the tool-house; therefore we have cheap hoes, or hoes partly worn out, hung on the fence in different places, and these are there all summer; and the same way with spades. And we have some old manure-forks put around in different places, to be used on a pinch for short jobs. Some good workmen object to these partly used-up tools, I know. But we scatter them about so they often do excellent service in an emergency. I remember one man stood still for quite a while because he hadn't a suitable tool for shaking up the manure in a hot-bed. I pointed out to him a four-tined manure-fork with one of the tines broken out. I told him

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*Every little while some well-meaning *new* boy makes mischief by gathering up all the baskets (without orders) and carrying them to the market-house.

he could go on with that until I could send him a better one. He either refused to use it, or took it with a very bad grace. Now, even if he could not have made very good time he could have made half or three-quarters of the time that he could with a good fork, and this would have been better than standing still. On another occasion, some more sand was needed over our sweet-potato plants. After he had wasted some time in hunting for a shovel, I showed him a scoop in plain sight. He objected to using it, because it was slightly split in the middle. Now, this scoop would have handled *sand* almost if not quite as well as a perfect one. You may say that you would have started such a man in double-quick time. All right, if he refused to be corrected in his notions about tools; but as the man in question was one of our most expert gardeners, I decided to let it pass and talk with him about it some time when we felt pleasant. You see from the above that I recommend, at least to some extent, leaving tools, spades, hoes, and forks, outdoors—a practice that has been strongly condemned by our agricultural writers. Well, I have just been thinking that we might have a compromise—have some little tool-houses or tool-boxes, if you choose, just large enough to shelter a hoe, spade, shovel, etc. While these tools are sheltered from the weather they should be so arranged that one can see quite a distance off what tools are in their places in the tool-box. These tool-boxes should be located over the grounds where there is much travel. One good point for us will be at the bridge near the carp-pond; two others will be at the windmills, for this is where the men go to get a drink. Trowels for taking up strawberry-plants should also be near these tool-houses. How often I have felt that I would give a nickel for a trowel, rather than to send a boy after one, with the chance of having him come back and inform me that it was not there! Then all hands should coöperate in storing the tools in the nearest tool-box that happens to have a vacant place for said tool. Each tool should have a nice convenient place to hang it up, so that there may be no excuse for throwing it down or standing it on end because somebody was tired. Then over its appropriate hanging-place should be the name of the tool. I think I would have some sort of old ax in every tool-box, and a cheap hammer and a few nails. A five-cent hammer will often do a great amount of good. Yes, we want some wrenches too. How often have our men gone clear to the factory for a wrench, and, may be, because they were in a hurry they got one out of the machine-shop! Then the machinists would finally complain that a certain convenient wrench was gone, and hadn't been seen for three or four weeks. Now, these troubles about tools are not alone confined to our establishment. I have seen farmers, right during the rush of work, let one of their most valuable men waste more time in a single day than a good tool would cost, just for the lack of what I have been trying to indicate. Now, my good friend, the next time you make us a visit, you look out for our little tool-houses. Of course, it *is* possible to have too many tools instead of too few. But a much smaller number can be made to answer, without question, if there is some systematic planning instituted, such as I have tried to figure out in the above. Oh, yes! about having a man to the acre, where one has a market-garden of one or twenty acres. We have never yet used a fourth of that amount of help—that is, right along. But we have not yet got *five* acres of our twenty up to Peter Henderson's standard of fertility. With an acre underdrained, manured, and worked up fine and soft, down to a good depth (and all up to the highest notch), I do believe we can profitably keep one man busy on it during the greater part of the summer months. And when we are raising plants for sale we want two or three boys besides the one man.

MULCH FOR STRAWBERRIES DURING FRUITING TIME.

I have just removed the outer packing of planer shavings from bee-hives, and expect to use it in mulching strawberries. I have never heard this material recommended for the purpose. Do you know of any objection to it?

Dayton, Ill., May 22. J. A. GREEN.

[Friend G., planer shavings have been used a good deal for the purposes you mention; but it is not generally considered satisfactory. It keeps the fruit clean very well, and mulches the ground so as to be of considerable protection during a drouth; but the shavings are a long time in rotting, and thus cumber the ground with useless trash. They also afterward, when worked into the soil, make it dry out worse during a drouth than if they were not present; and when they decay, a kind of fungoid or toadstool growth frequently infests them that is not conducive to healthy vegetation. We are using manure now where they were used for bedding under the horses. Where they are more than half horse manure they do much better. But there is no mulch that I know of for the *straw*berries like *straw*. Straw rots quickly, and seems to furnish a valuable vegetable constituent for the soil. If we could have cut straw mixed in with horse manure, without any grass or weed seeds in it, we should have the ideal mulch. Sawdust as a mulch has, of course, many of the objectionable features of planer shavings; but being finer it is not so much of an objection. Hard-wood sawdust or planer shavings are less objectionable than pine, for they will rot in time, and form rotten wood; and we all know that rotten wood is a very good fertilizer. Pine, however, is a very long while in rotting; and even when it does rot, the rotten pine sawdust does not seem to be of any such value as that which comes from hard wood.] A. I. R.

MYSELF AND MY NEIGHBORS.

Looking unto Jesus, the author and finisher of our faith.—HEB. 12:2.

We have a good many nice workmen, skilled mechanics, and really intelligent artists, in our working force here at the Home of the Honey-bees. At the head of almost every department you will find a skillful artisan—not only men, but women too, who may be intrusted with complicated pieces of work that require great care and painstaking. Every little while we have expensive men sent here from a distance to superintend the construction and putting up of complicated machinery. I like to get acquainted with these men, and find out all I can about them. A good many times I ascertain what pay they get. The man who put up our electric-light plant was hardly a man grown. He seemed to be, in fact, a mere boy; but yet he was fully equal to the responsible place in which he had been put. He was pleasant, quiet, and good-natured, but, at the same time, he was decided, and insisted on every step being made just right. Within the past few days we have been locating hydrants out on the grounds, perhaps a hundred feet away, at the different corners of our factory. Any one of these hydrants will throw two streams of water, equal in capacity to that of an ordinary fire-engine. The insurance companies recommended these as a means of controlling a fire if it should get beyond the control of the sprinklers. They also protect our lumber-yards, various outbuildings, the freight and passenger depot belonging to the railroad, and the storehouse and lumber-yard belonging to a neighbor. Aside from the head of water furnished by the windmill tank on the hill, a powerful fire-engine, or steam-pump, is located near our boilers, with a head of steam constantly on. These four hydrants I have mentioned are inside of a little hydrant-house. This house keeps the hose secure from the weather, and ready to use at a moment's notice. This great steam-pump has what is called an automatic governor. This governor is so wonderful in its arrangement that it starts the steam-pump the minute one of the hydrants is opened; that is, the system of iron pipes connected with the hydrants and sprinklers carries a head of water amounting to 20 or 25 pounds of pressure. This comes from the elevated tanks. But just as soon as an opening is made from any of the hydrants or sprinklers so as to let the water begin to flow, this governor turns on steam until the water is propelled with a pressure of 90 or perhaps 100 pounds. Stranger still, just as soon as a hydrant is closed, the automatic governor shuts off the steam. Instead of being obliged to keep a man at the steam-pump to handle the throttle-valve, the automatic governor does it better than any living man possibly could.

Well, when we talked about putting up this pump and this line of cast-iron piping to go to the four hydrants, we talked about getting an expert to come from the factory and set it up. The general foreman of our works, however, suggested that our own men could do the work just as well as, and a good deal cheaper than, any of the city folks. While it was being done, it was necessary to cut off our waterworks, and leave our whole plant, even when running full blast, entirely out of fire protection; and this, too, right in the midst of a severe drouth, when terrible fires were reported through the papers daily. I explained to our people, at the noon service, what we were going to do, and asked the coöperation of them all; and I have been greatly pleased to see how nicely each skillful mechanic has done his part in all this appointed work. We have had no hitches, drawbacks, nor expensive blunders; and when the water was turned on to test the accuracy of the joints, the whole system was found to be almost perfect. Our men and boys knew the responsibilities that rested on them, and they bent their whole energies to the work. I have told you before how I admire and love skillful workmen. Now, skill and ability come only by patient, faithful perseverance and hard work. If you wish to command good pay, you must work hard for your reputation. There certainly *is* "no excellence" in any department of work, "without great labor." One who strives for superior wages must bend his whole energies untiringly to the work in question. He must study during working hours and outside of working hours to overcome the obstacles in his line of work; to make short cuts when they can be made; to look ahead and see what is coming, and at the same time know what is going on around him. His mind must be on his *work*. He must undergo *hardships* more or less. He must work when he does not feel like it, and he must forego many pleasures that people around him seem to enjoy right along. He must be *self-sacrificing*.

Perhaps you may be ready to inquire what this has to do with our text. Well, it comes right in here, dear reader. Just in precisely the same way it takes hard, persistent, energetic work to become a fine mechanic, so it takes hard, persistent daily toil to become a skillful worker for Christ Jesus. That word "finisher" in our text occurred to me when I was talking to our people at the noon service. The *finisher* of a piece of work or machinery is the most important man, generally speaking, on the job; and Jesus is to be both *author* and finisher of our faith. After we have done all we can to become faithful workers in his vineyard, he himself of his own loving spirit is to put on the finishing touches.

And now a word about the last thing in our text. Faith—what is it? Within a few days two incidents have given me a glimpse of what faith really is. The glimpse comes from two different sides. The first glimpse came in this way: A man whom I esteem very much has been for years leaning toward skepticism. I have thought, as I looked at him, that it was one of the queer things of this world that *he* should be a skeptic. He has had excellent religious training, and the rest of the family, I believe, are professing Christians. Why should *he* stand off to one side? Well, during the meetings of last winter, or perhaps, rather, along in the spring, this friend seemed to be slowly changing. A sermon from our good pastor (who gave us the one in our last issue) had very much to do with it. Then he began going to our Endeavor Society meetings, and the spirit of the work at once commended itself to him. He is a good mechanic himself, and the glimpse he got of young people aiding and encouraging each other in this work of *perfecting Christian character* appealed to his heart in a way that he could not long resist. He did not tell me this, but I think I am pretty nearly right about it, nevertheless. Well, a few days ago he stopped me as I was passing, and made a remark something like this:

"Mr. Root, I owe you an apology."

As I looked into his bright face, full of faith in his new-found Savior, I replied smilingly, "Why, friend ——, if you really do owe an apology, I am sure I can not tell what it is for."

"Mr. Root, I knew you couldn't, for I want to apologize for what I have been *thinking* for so many years past, rather than for any thing I have *said* or *done*. I want to apologize to you for not having understood you until lately. I used to think that you were not what you professed to be."

Some of you may smile at this. The letters that have recently been in Gleanings indicate that some others besides those who see me day by day hold the same opinion. Who is at fault? Well, I think it will be a pretty safe thing to say that I am myself more or less at fault. During these years that have passed, I may have learned something in the way of being a good workman in the vineyard of the Lord. But there are many sad defects that mar and greatly hinder the success of much of my work. Lord, help! My young friend (young in Christ Jesus) went on to say:

"For a long time I tried to make myself believe that you were not sincere; or, to speak right out plain, I thought you were more or less a hypocrite; but I want to say I think differently now. I believe I understand you, and I am sure you are working for the good of humanity. Please forgive me, in that I have not until lately given you the credit you deserve."

I do not remember just what I replied, but I thought something as follows: "Why, my good friend, it is the spirit of Christ Jesus that gives you this charity and this broad love for every thing and everybody. You have faith in others around you as well as in my poor self, for you have now in your heart that virtue that 'hopeth all things,' 'believeth all things,' and 'thinketh no evil.'"

If there is any one thing that is a sure evidence of the new birth, it is this very quality of seeing good in everybody, and of having faith in humanity, as well as faith in God. Now, this new faith shows itself in this brother's face. It is a pleasure for me to look at him since he has become a Christian. Oh that this great faith might last—might endure and grow, not only in the hearts of the new converts, but with those of us who have been long in Christ's service! I tried to tell our friend that he must look out for shocks to this bright faith. I told him he would find inconsistencies here and there in the lives of the best of Christians, especially if he were on the watch for them. Just now, and perhaps for some little time to come, it will be an *easy* matter to have faith; but sooner or later the tempter will take him unawares, and persuade him that mankind are not what they profess to be. Now, while we enjoin him and others in like circumstances to have faith, and to hold on to the virtue that thinketh no evil, let *us* also be careful that we give him (or them) no needless grounds for losing faith. Let us remember, when we meet with such in our tasks, that they are new-born children, and that they should be remembered with care. It is true, their faith should be of the kind that is able to endure severe trials. David says, "Great peace have they which love thy law, and nothing shall offend them." Few of us, however, have come to the point of having a faith so bright and clear that it shall be *entirely* above the shocks of this world's trials. A careful workman should be careful about *giving* offense, and also about *taking* offense. Sometimes it seems as if I could stand almost any thing, and take it cool and smilingly. At other times I become demoralized and upset at the merest trifles; and all the experience I have had in the years that are past does not seem to help me very much in being that "finished" workman that I might be and ought to be. Paul says to Timothy, "Study to show thyself approved unto God, a *workman* that needeth *not* to be ashamed." But, oh how far I am from that mark! If I do well for a little while, I am apt to become proud of my skill—my skill in being a good Christian, I mean. Then I become overbearing, and then straightway I am "ashamed"—ashamed that I *am* such a poor *bungling* workman.

The above incident gives us an idea of what faith is, how it comes, and that it is at least largely a result of the work of the divine Spirit in the human heart. My second incident shows us the result of the *lack* of faith; and it tells us, too, of the way whereby one loses faith. Perhaps I should ask pardon of some of my readers for again having any thing to say in regard to millionaires. Mind you, I have never, by any means, claimed that *all* millionaires are good men—only that a man *might* have control of considerable wealth, and *still* be a good man. Well, a friend of mine was speaking bitterly in regard to capital and capitalists. I suggested to him, by way of a mild defense, that Washington, the father of our country, was a man of considerable wealth, and *almost* a millionaire, proposing to let the matter drop there. To my astonishment, however, he began criticising Washington severely. The things he brought up against him may be true; but it gave me a feeling of pain and sadness that I did not get over for some time afterward. Of course, Washington was human, like the rest of us; or, perhaps I should say, *much* like the rest of us; but is it wise or well, or can any good come at this late day, from bringing up his weaknesses and his imperfections? He who was "first in war, first in peace, and first in the hearts of his countrymen"—can we not afford to let a broad charity cover what defects there may have been in the past? And is it wise or well to tell our children that the boy who said, "I can not tell a lie, father," had many bad and disagreeable traits, even if he did *not* tell lies? God forbid. May the name of Washington never be less reverenced and respected than it is now; and may we realize that, to spoil the faith that the present generation associates with the very name of Washington, would be a misfortune and a *calamity* to the children of the present day. Talking about the defects or weak points of any human being is *dangerous* business, and especially is it dangerous to drag down the names of those who have been respected and revered for ages. Now then, when we lose faith in our *neighbors*, faith in our *teachers*, in our *college professors*, in *ministers of the gospel*, in the *heads of our government*, we are on the straight road to losing *faith in God;* and not a few times have I heard those who find so much fault with men in office and those in power, wind up with irreverent slurs toward the great Father of mankind, the God of the universe. A growing faith, coupled with hope, is a bright thing to look upon; but a waning faith, with hope gone, is a *terrible* thing to contemplate.

Now about being a careful and skillful workman. Let me here illustrate. Just as we were laying the iron pipes for the last of the four hydrants, as it went over on to the railroad ground the railroad company kindly offered to do the digging with their own men where it came on their territory, as this hydrant would be of great advantage to them in the matter of fire. A gang of workmen accordingly came to work one morning a little unexpectedly. I set some stakes, and showed them where to dig, but they lacked tools to work with to the best advantage. One more spade was needed. I told one of our men to go to the gardener, who was at work a little way off, and get a spade of him. I had noticed, but a few minutes before, that he had a spading-fork and a spade also. Had there been more time, perhaps I might have made some explanation; but a lot of men were waiting to be set at work. Some little time afterward I asked where the spade was he went for. He said the gardener refused to let him have it. Now, the gardener is a skillful mechanic. He will handle a spade a little better, to my notion, perhaps, than any other man on the grounds. Not only that, he is a Christian, and, of course, a man with no bad habits. Notwithstanding, he has some peculiarities that are sometimes quite annoying. As his eye may meet these pages, I do not wish to find any fault with him here, more than to say that, for some time back, I have been thinking that I should have to have a pleasant, good-natured talk with him, and tell him that, unless he could do differently, we two had better dissolve our business relations. I had put this off, however, because, when I was not at all vexed, it was a very hard thing to begin to find fault, and thus it was delayed. When, however, I learned that he refused to let us have the spade, I went in somewhat of a hurry to where he was at work. The spade lay on the ground, and one of our small boys near it. I directed the boy to carry it up to the railroad men, proposing to make explanations after the boy had started on his errand. My old friend, however, was provoked, and said, in a not very pleasant voice, "But what am I to do?" meaning, what was he to do without a spade? I intended to tell him to get along with the spading-fork for a few minutes, and I would send the boy to bring one from the carp-pond, where he (the gardener) and I had been using it the day before. I presume he had forgotten this extra spade that I had in mind. Instead of explaining things gently, however, about the spade at the carp-pond, I was a little put out by his refusal and question, and so I replied, in answer to his question as to what he should do, "Why, my friend, I think the *first* thing you are to do is to do a little *better* in some respects than you have deen doing." I intended at the time to keep strictly within bounds, and to do nothing that a Christian "workman" should not do. He, however, insisted that I should tell him wherein he had been remiss. I knew it was a bad time for either of us to tell the other of his faults, and I started to go away, proposing to finish the conversation when both of us were in a better frame of mind. Before I got out of his hearing, however, he said something about having much unpleasant work to do, and of being obliged to put up with a good deal for the accommodation of others. At this I stopped and said something as near the following as I can recollect:

"My good friend, if things are so unpleasant and inconvenient here, had you not better find a place where you can have nice easy work and nothing objectionable to do?"

For several hours afterward I kept telling myself that I had said nothing out of the way, or unreasonable. But slowly the matter began to lie heavily on my conscience—not because I was sorry to see him decide to work for somebody else, for it was rather a relief just then to have him do so; but I felt a heavy load on my consccience, to think that, when any one of my men had decided to work elsewhere, we should have dissolved our relations, which were of several years' standing, and part company with unkind feelings in our hearts toward each other. When I went to bed that night I kept thinking, "Oh what would I give if we had parted company with pleasant feelings and kind expressions for each other's welfare?"

We have been having one of the most severe drouths that has been known for years here in this part of the State of Ohio. I had been for days anxiously watching the barometer; yes, I have prayed at home, and at the noon service, that God would send us the rain we so much needed, if consistent with his holy will. Well, the rain came this very day; and while my prayers were being answered I was so ungrateful and unthankful that I allowed myself to feel vexed—another evidence of my being a poor bungling workman. I told my wife, as we prepared to go to bed that night, that only one thing prevented me from being really happy. This one thing was the one item I have been mentioning; and the first thing on awakening in the morning was this same load on my conscience, and a feeling of shame that, whatever my abilities in *other* directions, I was but a poor stumbling and *blundering* workman in the service of Christ Jesus. Some of you may say, "Why, Mr. Root, this is all 'folderol.' When a man is stubborn or contrary, or when you do not need him, it is all moonshine about shaking hands, and wishing each other good luck, and all that." Well, I do not know that I believe in any sentimentality about it; but I *do* believe in "living at peace with all men so far as in me lieth;" and when a man has been in your employ for five or six years, or you have been five or six years in his employ, if things come up that make it advisable on one or both sides to dissolve relations, it is the duty of every Christian, I am *sure*, to bid each other God-speed, with pleasant feelings on both sides. Very likely it is not often done; but, oh how great will be the gain in these times when there is danger of war (almost any moment) between capital and labor! And how greatly does it behoove us to be constantly looking, in the language of our text, "unto Jesus, the author and finisher of our faith"! Why not see my friend, or write to him what I say, and tell him the truth? Well, it is not so easy a matter. So far as business is concerned, the matter stands satisfactory, probably, on both sides where it is; but, how about the spiritual bearing of the whole matter? The boy who stood by with the spade in his hand would naturally think that, if that were the way *Christians* dissolve business relations, it must be the right and proper way; and yet this boy is *very greatly* in need of Christian influences. Again, our mutual friends will surely know, sooner or later, that there has been trouble between us; and it will be the most natural thing in the world for each of us to speak disparagingly of the other, and thus Christ Jesus be put to shame instead of being glorified.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to Gleanings. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to Gleanings, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

ORDERS FOR A FRIEND.

A friend of mine, Mr. Robert Jones, has quit the use of tobacco, and he thinks he is entitled to one of your smokers. If you think he is worthy of one, please send it to my address and I will see that he gets it; and if he ever uses tobacco again, I promise to pay for the same.

Morgan, Ky., May 1. H. C. Clemons.

NO MORE TOBACCO FOR HIM.

Through the influence of the Tobacco Column, which I have read in Gleanings, 1st, I have stopped the use of tobacco; 2d, I promise to pay for the smoker should I ever resume the use of tobacco in any form after receiving the smoker; and if you think I am entitled to a smoker, I shall be very well pleased.

Oxford Depot, N. Y., Apr. 21. Harry Earl.

ANOTHER YOUNG CONVERT.

Billy Clarno, who is now working in my apiary, is 16 years of age, and has used tobacco several years. I have persuaded him to break short off, and he requests me to ask you for a smoker, and says he will never use tobacco again; but in case he breaks his pledge he promises to pay for the smoker. H. Lathrop.

Browntown Wis., Apr. 29.

My husband, H. W. White, has been smoking for 23 years (never chewed tobacco). Six weeks ago he laid his pipe aside. I wondered what it meant, but said nothing. He asked if I saw any change in him. I said, "Yes, for the better." He said he had made up his mind to stop smoking, and has not said why. I give Gleanings credit for it. Please send him a smoker. If he goes to smoking again I will pay for it. B. J. White.

Broad Run Station, Va., May 11.

IS NOT EASILY PROVOKED; THINKETH NO EVIL.

ONE OF THE DANGERS THAT THREATEN NOT ONLY OUR NATION BUT THE WHOLE WORLD.

I know this is an old, old subject through these pages; but so long as I see troubles multiply, and quarrel after quarrel arise, simply for the lack of the spirit indicated in my favorite text above, I can not but protest. Our present troubles and misunderstandings between labor and capital seem to me to come very largely from thoughtless jumping at conclusions, being in haste to call men liars or rascals, and being ready to think evil, even at the slightest opportunity. If this matter were confined to non-professors of religion, it would be bad; but the saddest part is, that followers of Christ are so ready to think evil of their brothers or sisters in Christ Jesus. The illustration I am going to use concerns myself, and I am well aware that I shall lay myself open to the attacks that have been recently made through these pages. But I prefer to give items from my own personal experience, rather than to take something I do not know all about. In a recent issue of one of our bee-journals appears the following:

> I never bought much of Root, but I bought a smoker. I sent $1.25, supposing that was the price. I was sent a 75-cent smoker, as I found by looking at the price list afterward; and when I found I had paid too much I wrote and he said he had credited it to me. He did after I wrote, at least, and I hope he did before, just as he said. MRS. F. A. DAYTON.
> Bradford, Ia.

The above comes from a *woman*, and a *professor of religion!* Now let us see what grounds she had for suggesting that our establishment *might* have had a purpose of taking $1.25 for an article that we advertised at 70 cents. Here is her order for the smoker:

> *Mr. Root:*—Will you please send me one of your best smokers—one that is light, and handy for a woman to use? MRS. F. A. DAYTON.
> Bradford, Ia., July 30, 1889.

The first blunder she makes is in thinking that A. I. Root *himself* opens letters and takes out the money, mails smokers, etc., while a glance at our price list should show this to be an utter impossibility. One of her own sex, and a Christian woman, who has been for many years, like myself, a professor of religion, received her letter, gave orders to a sister-clerk to mail the smoker, then sent her a bill, *giving her credit* for the amount of money received, *telling her that the 55 cts. remained to her credit*, of course subject to her order. The whole correspondence went to the ledgers, and then another Christian woman placed the amount to her credit. If, after a certain number of days, this credit is not used, the party having the credit is notified, asking whether we shall return it in money, or whether he will be wanting something from us again. Most of our readers have had these credit cards, and know all about it. There are about a dozen different women employed in our office, and they have charge of almost all this sort of work—mailing goods, making bills, answering letters, etc. In order to send a customer a 70-cent article, and charge $1.25 for it, there would have to be some systematic fraud among all these women. Like other establishments, we have written or printed rules, or directions, for clerks, covering almost all emergencies in business. If my intention were to build up a business by fraud, I should have to have some rules something like this:

> "When a customer sends more money than is needed for the article he wants, *keep it* and say nothing about it. If, however, he should afterward inquire about it, hand it over to him if you are *obliged* to."

Just think for a minute of the idea of getting a dozen intelligent women to undertake to do business with rules like the above! One of this kind of people who are ready to "think evil" once visited a widow lady whose daughter was in my employ, with the view of finding out whether it were not true that the honey we sold was made of sugar instead of taking it from the hives. The woman turned on him with such scorn and contempt that he was glad to beat a retreat. Said she in substance, "Sir, do you come here taking it for granted that my daughter would continue in the employ of a man who cooked up sugar, and labeled it *pure honey?* Would *she* be a party to filling the jars with this spurious stuff, and then pasting the label on the outside, which she knew was a falsehood and a cheat? Your insinuations are an unjust slander, not only on my daughter's veracity, but on all the rest of the men and women in his employ." The man apologized, and said he had not looked at it in that way before, and that no doubt he had been thoughtless and uncharitable. Do you suggest that I may be lacking in charity, and that the lady in question did *not* get the bill? Well, that is exactly what I suggested when I first saw the letter in print; but here is a second letter from her, written a little later:

> *Mr. Root:*—I sent you $1.25 to buy a smoker. I had understood that your price was $1.25. I had some of your price lists in my house; but having so much work, and so much trouble on my mind, I did not think I could go to a list to learn. But after receiving the smoker I thought it was a high price for so small and cheap-looking an article. Since I have examined your list I find I ought not to have paid over 75 cents, postage and all. Now, I wish you to apply what you owe me, on my subscription to GLEANINGS, or send me a Bingham smoker, or return the money.
> Bradford, Ia., Sept. 11, 1889. MRS. F. A. DAYTON.

As soon as the above came to hand, the clerk transferred her credit of 55 cents to the subscription list, and forwarded her GLEANINGS. Then the book-keeper, who is an old hand at all such matters, and, of course, easily touched when any thing reflects on the veracity of our women-folks, sent her a *duplicate* bill and wrote her the following:

> *Mrs. Dayton:*—Did you not receive our bill showing the price of the smoker to be 70 cents, postage included, and that we held 55 cents balance due you? See duplicate bill attached. If you use the smoker according to directions, I think you will find it all right. We have sent thousands just like it, which gave good satisfaction. If there is any fault, however, in this one, please state what it is and we will cheerfully make it right. We will apply 50 cents of your credit on GLEANINGS, as you request, which will advance the date of your subscription six months, and we inclose herewith 5 cents in stamps to balance account, which we trust will be satisfactory to you. A. I. ROOT, per E. M.
> Medina, Sept. 14, 1889.

Now, I have had our clerks look carefully, but we can not find any reply to the book-keeper's question. The *letter*, you will notice, seems to question (at least a little) our honesty; but even after having been written to thus kindly by the book-keeper, she rushes into print with the suggestion that A. I. Root's love of gain was so great that he might have yielded to the temptation to take 55 cents because he saw a chance, even though the customer were a *woman*. My good friend, you say in your article to the bee-journal that you have read Root's A B C of Bee Culture. Could you believe it possible that the man who wrote that book could take 55 cents from anybody, much less from a woman? I beg pardon for what seems like boasting, dear friends; but the point I wish to make is this: People are thoughtlessly and foolishly accused of mean little things like this when the bare suggestion is an absurdity. I know that we sometimes meet with shocking cases of depravity; yet the men who write good books, and who occupy prominent positions in society and in the literary world do *not* do such things. The idea that a man could build up a great business, employing more than a hundred hands, and be guilty of cheating in small matters, would seem to indicate that honesty is *not* the best policy. Did anybody ever build up a great business by cheating or defrauding? Surely not. The business man who deliberately takes $1.25 for a thing which is worth only 70 cents, is on the road to financial ruin. If he persists in it he will soon have neither store nor clerks. The tramp who goes from house to house begging for cold victuals would be quite likely to do things of this kind, for it is right in his line. Sometimes a man has money left him, and for a little time he imagines he may do business, and hold trade and keep customers, by cheating; but very soon every man or woman, even those who are dishonest and depraved, turn from him in disgust. "Be sure your sin will find you out." This is as true now as it was in Bible times. One reason why I have had much charity for the managers of large institutions where capital is employed, is because I have felt sure there must be some kind of honor and truth about them or they never would have become a great concern or even capitalists. In the first Psalm there is a promise ending, "And whatsoever he doeth shall prosper." Does this refer to people who cheat? *By no manner of means.* Again, it tells us of a sort of people which are "like the chaff which the wind driveth away." What sort are these? *They* are the ungodly, of course—those who deliberately commit wickedness.

THE KEROSENE EMULSION.

PROF. COOK CORRECTS HIS FORMULA, AS GIVEN ON PAGE 420, LAST ISSUE.

After the above was in print, friend Cook wrote us, asking us to substitute the formula given below, which we take from Bulletin 73 of the Michigan Agricultural College, April, 1891:

> My formula recommended for years is this: Dissolve in two quarts of water one quart of soft soap or one-fourth pound of hard soap, by heating to the boiling-point, then add one pint of kerosene oil, and stir violently for from three to five minutes. This is best done by pumping the liquid into itself through a small nozzle, so that it shall be thoroughly agitated. This *mixes the oil permanently* so that it *will never separate*, and can be diluted easily, at pleasure, by simply shaking or slightly stirring after adding the water to dilute. I have often stated that it was not necessary to use so much soft soap, but was better, as it insured a perfect emulsion even upon dilution, and the soap itself is an insecticide, and valuable, aside from its emulsifying power. I also have stated that, in using soft soap, a quart of water would do. I prefer, however, the two quarts, as the emulsion is more sure, and the thinner material permits more ready and more speedy dilution, especially in cold weather. I have always placed soft soap first, as most farmers have it; and convenience is very important in such matters. A farmer will make and use an article when all the ingredients are at hand, whereas he would not do so had he to go and purchase them for this express purpose.

The agitation should be violent, but need not be long. We have formed a perfect emulsion in one minute, even with cold water.

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.

Thou shalt not bear false witness against thy neighbor.—Exodus 20: 16.

We notice that there is a great scarcity of first quality of comb honey. It is thought that the prices will open up good and strong.

We are rearing cells *a la* Doolittle. His artificial cell-cups work very nicely; and, in fact, during this season of the year it has been about the only way we could gets cells at all.

A bill for the suppression of foul broud and the appointment of an inspector did not pass in the Wisconsin State Legislature, as we stated in last issue. It passed the Senate, but failed to pass the Assembly, for the want of votes, much to the regret of the bee-keepers of the State, so says a correspondent from Wisconsin.

The slatted honey-boards have gone out of sale entirely in our establishment. The new top-bars have made it take a back seat. The slatted honey-board was a good thing, and served its purpose well. But something vastly better has taken its place—at least, so say our customers. Queen-excluding honey-boards are as popular as ever.

At this season of year a good many bee-keepers come to visit our yards as well as to buy supplies. We take pleasure in showing them the Hoffman frames in the apiary; and, without an exception, they are pleased with them. These frames do not kill bees as they thought they would. If handled hurriedly or clumsily, they may kill a few.

The Punic bees are a new race lately introduced in England, and are shortly to be introduced into this country. We have no doubt that they are the same bees that have been described by some African missionaries. They are said to surpass in good qualities all other known races of bees. As usual they are painted in rather glowing colors. It is admitted that they are bad propolizers.

We have just received a Benton cage full of beautiful yellow Italian bees and drones, from J. F. Michel, of German, O. We unhesitatingly pronounce them the yellowest bees we ever saw. On some the whole abdomen is yellow, except the tip, which is black. In fact, they have more yellow on them than the beautiful bees sent out by Timpe and Hearn. May be they are bees that came from them.

My statement, that fixed frames could be handled as rapidly as loose frames, and, in some cases, more so, has been challenged once or twice, although I have as good authority as Mr. Elwood, Mr. Hoffman, and others to back me. On page 473, this issue, Mr. J. A. Green says it takes about twice as long to handle metal-cornered loose frames as it does fixed closed-end frames, and then gives his reasons. This fact must not be overlooked: They have tried both kinds—loose and fixed frames.

E. R. R.

We have just had some hard beating rains. Immediately after one heavy dash we went out into the yard and looked into a number of Dovetailed hives with flat covers. There was not even a drop of water in the hives. We observed that capillary attraction plays a very strong part in keeping water from entering the hives. It will seep in near the outside edges, and there remain; but as we paint the top edges as well as the under side of all of our covers (and every bee-keeper should do so), no rotting will take place—at least, not for a good many years to come.

We want reports of the automatic self-hiver. We do not doubt that it will work in the majority of cases; but the question that comes up is this: Will not the expense attendant upon the paraphernalia more than compensate for the convenience of the automatic feature of it? or, in other words, will not bee-keepers, instead of going to the expense of automatic self-hivers on a third or a half of their colonies, prefer to hive them in the old way, in and out of season? Observe, that we do not claim they *are* expensive, but we only raise the question, and, like others, are seeking for information.

BUYING BEES VS. FEEDING TO STIMULATE.

We have been obliged to buy up a good many colonies of bees this spring, on account of the rush of orders for bees and queens. While we bought some very nice lots, there were a good many other lots that were on crooked combs, and on frames of home-made construction. All this necessitated their transferring, or, better, letting brood hatch out over queen-excluders, and causing the bees to build out foundation in Hoffman frames in the brood-nest below. All of this is expensive, to say nothing of the first cost of the bees. Granulated-sugar syrup is now down so low that sugar syrup can be made for about 3 cents per pound. At this very low price of sugar we can raise bees cheaper than we can buy them. By the way, is not this low price of sugar going to be a boon to bee-keepers rather than a detriment? We have already received advices that new dark honey placed on the market is selling at the old figures; and this despite the fact that it was predicted that *dark* honey would be affected by the low price of sugar, if any thing. In a poor year, and if the bees are short of stores, it is going to be quite a boon to bee-keepers to be able to get the nicest kind of syrup for about 3 cts. for feeding bees.

ADULTERATION OF HONEY.

The last *Bee-keepers' Review* discusses the matter of adulteration. The correspondents do not all agree as to the best method of fighting the evil. Some, with the editor, recommend cheaper honey, so as to make adulteration unprofitable, while others contend, with a good show of reason, that this is impracticable. Others, again, intimate that the actual evils arising from adulteration in the way of competition are very small in comparison with those arising from the continual talk about it. It is no doubt true, that there has been too much talk and too much vilifying of adulterators, and too little doing. We believe that the adulterators can be prosecuted; and while it may not be possible to tell the adulterated article, the mixers may be watched by detectives employed by the Bee-keepers' Union or any other association of bee-keepers, and, upon proper conviction, be fined or imprisoned in accordance with the law. Now that sugar has come down so that granulated syrup can be had for about three cents a pound, there will be some temptation to put a little of the cane product into honey; but dishonesty is always unprofitable. It is suggested in the *Review*, that consumers shun all kinds of honey not properly labeled — a good point; and it would be well to buy from reliable dealers, and, as far as possible, honey bearing brand and label of *producer*.

IMPORTED QUEENS PROHIBITED BY MAIL.

We learn by the *American Bee Journal*, page 663, by a letter from the Custom-house officers in New York, under date of May 11, that the "importation through the mails of any dutiable merchandise (except books and printed matter) is a violation of the law, and subjects the article so imported to forfeiture." This, according to the new law, includes queens, and makes it a little bad for those who have already ordered queens by mail. It is a great convenience many times to the individual bee-keeper to order three or four queens for himself direct from Italy; but now no one but the extensive breeder of bees and queens can afford to order queens, and those in large shipments by *express*. Three or four queens by express, enough for the individual needs of the bee-keeper, would make the express charges per queen, to say nothing of the ad valorem duty, excessively high. But there is one fact somewhat to the encouragement of those who have already ordered queens from Italy by mail, and we would advise them to apply for a similar ruling in their behalf. It is this, quoting from the *American Bee Journal:*

> The Customs Collector of New York is authorized by the Customs Department to order the release, on the expected arrival there, of a shipment of Italian queen-bees, sent through the mails from Italy, to a citizen of Iowa, upon payment of a fine equal to the duty thereon. These bees are liable to duty at 20 per per cent ad valorem.

It is evident from this that the Custom-house officers, recognizing that there was an injustice, and that queen-bees were not anticipated by the framers of the law, have decided to let queens, already ordered by one party, come, with virtually the simple payment of a duty of 20 per cent. Perhaps some of our readers may not understand what a 20 per cent ad valorem duty means. It is 20 per cent on the value of the goods with express charges added; that is, if the invoice value of an article is $2.00, including the express charges, the duty will be one-fifth of that, or 40 cents. See Charles Bianconcini's article elsewhere.

THE HOUSE-APIARY AND THE BEE-ESCAPE.

The editor of the *Bee-Keepers' Review*, readily catches on to the possibilities of the bee-escape for the house apiary. At the convention of the Ohio State Bee-keepers' Association at Toledo he suggested that the escape might do away with the most serious objection —that is, of disposing of and getting the bees out of the supers, without getting them all over the floor and in the room. The senior editor, quite independently, saw the same idea later on, without any knowledge of what W. Z. H. had said at Toledo, and gave expression to it in answer to Mr. Dibbern's article, both of which are copied in the *Review*. W. Z. H. wants to know if it is not another example of how "great minds run in the same channel." Yes, that's about it. Who knows but the bee-escape is going to make the house-apiary a practical success—that is, revive its use where it has been abandoned? We trust that some of our house-apiary people will test the escape at an early date—Mr. Vandervort, of Laceyville, Pa., for instance, who still uses it. There are decided advantages in keeping bees under lock and key, especially where there are thieves who make depredations; or, where land is limited, as in a city—too limited, indeed, to set out any kind of apiary—the house-apiary scheme is about the only feasible one for accommodating 25 or 50 colonies. We wonder if friend Muth, of Cincinnati, can not revive his apiary on the roof, in view of the bee-escape—nay, go a little further and construct thereon a modern house-apiary, equipped with modern bee-escapes. If the escape will work outdoors on ordinary hives it has *got* to work in the house-apiary.

THE HAVERLAND STRAWBERRY—ANOTHER BIG POINT IN ITS FAVOR.

I suppose that most of you know about the frosts that have cut off the fruit prospects, or greatly delayed them, all over the Northern States. Our potatoes that were started in the greenhouse have been cut down three times. They are now making a very fair show, and are ready to be cut down the fourth time, or—give us a good crop after all. Well, the Sharpless strawberry, perhaps, suffered most—that is, its early bloom did; the Jessie next, and so on down through a list of perhaps 20 varieties. Now, which one, do you suppose, stood the frost better than any other? Why, our new favorite, the Haverland; and just now, great green berries are lying almost in heaps around the plants, just as they did last year. Of course, there is some green fruit on the other varieties also; but the Haverlands are ever so much the largest, and the most of them. The first berries of the season are going to be Haverlands, without doubt. Michel's Early, standing right by the Haverlands, sent out blossoms again and again, some time before the Haverland commenced to bloom. But now while the Haverlands are well loaded with good-sized green berries, Michel's Early has only a few very small ones. I did not notice this particularly until one of our compositors remarked that his Haverlands stood the frost better than any other. One reason may be, that the fruit-blossoms lie right on the ground, and were often covered by the foliage of the plant. It is also possible that, during another season, they might fail to show this marked difference.

STUNG TO DEATH.

The following is an item that is going the rounds of the press:

> STUNG TO DEATH.
>
> San Antonio, Texas, May 20.—A Uvalde, Texas, dispatch says: Yesterday Geo. Minus, a stockman, met with a singular and fatal accident. He was driving past an apiary farm where they were extracting honey. The angry bees covered the two horses to the depth of an inch, and hid his face and hands like a helmet. The two horses died within an hour, and Mr. Minus is dying. Thousands of bees in their anger stung each other to death.

[This may be, and probably is, considerably exaggerated; for instance, *two horses* covered with bees to the depth of an *inch*. But even if true, the rarity of reports of people or animals dying from bee-stings shows that such casualties are not nearly so frequent as injuries and deaths resulting from keeping *horses*. Right here we can not forbear suggesting that the bee-escape would have averted all this trouble. Mr. G. H. Ashby, of Albion, N. Y., said that his bees frequently annoyed passers-by when extracting, until he used the bee-escape, and now that trouble is done away with. The parties in Texas who did the extracting were doubtless careless, and allowed the bees to get to robbing; and the fact that the bees stung everybody and every thing, points very strongly that way. Bee-escapes would have prevented robbing. The empty supers could have been carried to the extracting-house, or place secure from the bees, the honey extracted, and combs returned in the supers to the hives where they belonged. There is a lesson here that comes to us: Such accidents as these help to give color to the notion that prevails in certain localities, that bees are a nuisance and not fit to be kept within corporate limits. Bees do not begin to make the trouble that cows, chickens, and other stock do inside of corporations, and yet the latter are tolerated, and nothing is said against them. Who ever heard of a town council that wanted to oust chickens or cows from corporate limits because they got into into some old dyspeptic's garden?

THE UNITED STATES HONEY-PRODUCERS' EXCHANGE.

A REPORT UP TO MAY 10, 1891.

The reports up to date indicate that with the exception of New England, bees have wintered rather better than last year, when they wintered unusually well. The chief cause of the great mortality in New England seems to have been starvation. Some have lost their entire apiaries of 50 to 100 colonies or more, while those who provided them with sufficient stores have wintered with a small loss. Bees are generally reported to be in good condition; but in many cases, at the time of making out these reports, they were short of stores; but as this was only a few days before fruit-bloom, they are probably now well supplied, as the weather has been more favorable than usual during that period. The prospect for a good crop of honey has not been better for several years, unless it should be spoiled by dry weather.

The following are the questions that were sent out to the respondents, and correspond to the numbers by States and numbers just following.

1. What is the number of colonies reported in your locality so far as you know?
2. What per cent were lost in winter and spring?
3. How does the number remaining compare with last year, and what is their condition?

Pine Plains, N. Y. G. H. Knickerbocker.

STATE.	Qu. 1.	Qu. 2. Per cent of loss.	Question 3.
Alabama	600	20	15 per ct. less; cond'n better.
Arizona	1500	5	About the same.
California	4500	8	10 per ct. more; cond'n good.
Connecticut	250	20	About the same.
Colorado	3000	2	Ditto; cond'n much better.
Georgia	900	15	Ditto; good.
Idaho	1000	10	Ditto; good.
Iowa	1475	28	15 per ct. less; good.
Indiana	1150	5	Ditto; extra good
Indian Territory	700	10	20 per ct. more; extra good.
Illinois	1300	5	Same number; cond'n better.
Kansas	6100	5	Same number; cond'n better.
Kentucky	565	5	25 per ct. more; " "
Louisiana	400	0	10 per ct. more; " "
Maine	350	60	Fully half less; gen'y weak.
Massachusetts	650	45	Fully 40 p. c. less; not good.
Maryland	1300	8	Ditto; much better.
Michigan	2160	20	Ditto; rather better.
Minnesota	1264	15	5 per ct. more; "
Mississippi	200	20	15 per less; rather weak.
Missouri	2350	8	10 per ct. more; same.
Nebraska	550	20	About the same; good.
Nevada	700	10	About the same; good.
New Hampshire	300	50	40 per ct. less; cond'n fair.
New Jersey	200	2	20 per ct. more; never bet'r.
New York	11,950	25	10 per ct. less; rather "
North Carolina	500	10	15 per ct. more; some "
Ohio	1700	5	More; in better condition.
Pennsylvania	600	20	About same; fair to good.
Rhode Island	950	25	About same; very strong.
South Carolina	175	2	About same; extra good.
Tennessee	200	10	10 per ct. more; good cond'n.
Texas	1650	2	5 per cent more; cond'n better.
Vermont	2150	25	20 per ct. less; gen'y good.
Virginia	600	10	About same; fair to good.
West Virginia	800	5	Few more; cond'n good.
Washington	24	0	50 per ct. more " "
Wisconsin	2600	25	10 per less; cond'n fair.

[At the York State Bee-keepers' convention, held in Albany last February, arrangements were made whereby the Statistical Department of Gleanings and the United States Honey-producers' Exchange (also a scheme for disseminating statistics) were to be consolidated, and to be under the management of the former officers of the Exchange. The officers of the association are, P. H. Elwood, President; I. L. Scofield, Vice-president; G. H. Knickerbocker, Secretary. Mr. Knickerbocker is to take charge of the statistics of GLEANINGS for this year, and the above is the first installment. The plan of giving reports has been abbreviated, so that the reader may be able to get at the gist of the situation a little more readily.

We were very much surprised that the bees seem to have wintered so well generally, with the exceptions noted by Mr. Knickerbocker above. The prospects seem to be excellent. The average of losses, as given in Qu. 2, in the table, is $14\frac{14}{19}$ per cent.] E. R.

SPECIAL NOTICES.

POTATOES FOR SEED.

We have on hand only Henderson's Early Puritan and Terry's Monroe Seedling. These two kinds are in very good order, and we can ship them promptly at $1.50 per bushel, or $4.00 per barrel, said barrel holding about eleven pecks. Of course, the offer is for immediate orders.

VEGETABLE-PLANTS.

We have any quantity of cabbage-plants, Jersey Wakefield, Fottler's Brunswick, or Excelsior Flat Dutch; also a good stock of celery-plants. But *repeated* frosts have made so many second or third applications for tomato-plants that at the present writing our stock is very limited; and the same with sweet-potato and pepper-plants.

GOLD-COIN SWEET CORN.

When we got out our seed catalogue, there was considerable debate as to whether we should include the above sweet corn. A good many people prefer it to any other sweet corn for table use, even if it does have somewhat of a field-corn flavor. Some one has stated in print that it kept fit for table use a longer time than any other sweet corn known, and I at once remembered that ours did not seem to get too old or too hard at all. In view of the above we purchased some for our own use, and can let our readers have it at the usual price of ordinary sweet corn; viz., in 5-cent packages; or, half-pint, postpaid by mail, 8 cts.; one quart, postpaid, 30 cts.

TOBACCO DUST FOR STRIPED BUGS AND FLEA-BEETLES.

At present writing, the tobacco dust seems to be a perfect remedy for both of the above. Flea-beetles commenced suddenly on our cucumbers, squashes, potatoes, and even tomatoes; and we have been so much in the habit of seeing the leaves perforated and disfigured by these little pests that we began to think there was no help for it. To our surprise, however, we find that tobacco strewn over the plants and on the ground liberally does the business at once and to perfection. The expense is so little for the dust that we have for the present abandoned both the squash-boxes and the wire-cloth bug-protectors. The price of the tobacco dust is: 10 lbs., 25 cts.; 25 lbs., 50 cts.; 100 lbs., $1.75.

LOW OCEAN FREIGHT TO AUSTRALIA.

Freight by sailing vessel goes at so much per cubic foot, regardless of bulk or value, which fact simplifies the matter of rates and classification down to one item; while by rail a book of several hundred pages for each of the great number of railroad systems with their perplexing mass of rules and regulations, rates, and per cents, *ad infinitum*, seems to be necessary in these days. The rate by sailing vessel from New York to Melbourne, Australia, at present, is only 8 cents per cubic foot, which, on beehives K. D., sections, and that class of goods, is equal to 32 cts. per 100 lbs. This, for a trip of nearly 15,000 miles, compared with the rates charged by rail, will give a vivid illustration of the contrast between rail and water rates. The rate on the same class of goods from here to California points, less than 3000 miles, is $2.80 per 100 lbs., or 9 times as great. Now is a good time for our friends in Australia and New Zealand to lay in a supply of goods, as the rate has reached the lowest point that it has been for several years, being one-third what it was a year or two ago. At such rates our customers in the far-away commonwealth of Australia have less freight to pay than those in Texas, Nebraska, and other places of equal distance in our own land.

MOTTOES IN COMB FOR THE FAIR.

The fair is coming after a while, and this is always a good opportunity for educating the public and directing their attention to our pursuit by an attractive display of the products of the honey-bees, and the implements used in their management. It will greatly help in making your display attractive, to have your name or some motto worked in white comb honey. If you are ingenious, and have the tools, you can easily make the letters; or if you prefer to buy them we are prepared to furnish you what you want, as follows:

We have a full set of pattern letters to work from, and they are of such a size that three will fill an 8 section wide frame, the openings forming the letters being about 7½ in. high and 5 in. wide. *M* and *W*, of course, are wider, and *I* narrower. The letters are of the following pattern:

FAIR, 1891.

The price will be 15 cts. per letter or figure. With thin foundation inserted, 20 cts. per letter or figure. In ordering, if you will write the letters in the order you want them, we can make 3 letters in one piece, just right to slip into a wide frame. Or if you don't happen to have a wide frame, simply tack a bar on top, to suspend it from, and hang it in the hive without a frame around it. The 4 figures, 1891, will go in a frame. To make the letters, we simply tack two ⅜-inch boards together, mark the letter, and jig it out on a scroll-saw. To put in the foundation, separate the boards, lay a sheet between, and tack them together again. We make the letters large, because the bees will work in them more readily, and they are much more conspicuous when filled.

KIND WORDS FROM OUR CUSTOMERS.

The box of maple sugar came all right. Didn't we enjoy the treat! The nickel-plated shears cut like a charm, and are cheap for the money.
Canova, S. D., May 8. L. R. HILLMAN.

I have been using the water-cure treatment for about a year, and am cured of chronic rheumatism.
Exchange, Ill., Apr. 8. ISAAC HILL.

I received the bees yesterday, and put them into the hives to-day. They are working nicely so far.
Hanover, Me., May 12. FRANK E. RUSSELL.

The imported queen I got of you in October last is all right yet, nearly ready to cast a swarm. Her bees are of very good markings, better than I ever had before. G. OBERKAMPF.
New Braunfels, Tex., March 9.

Please stop my ad't in GLEANINGS, "hybrid queens for sale." I have orders from Maine, Vermont, Illinois, and lots from this State and Pennsylvania. One order is for eight. ED. GREELEY.
Lorain, O., Apr. 28.

I really could not do without GLEANINGS. That and the A B C have helped me a long way ahead of their cost, over and over again. In fact, I can not speak too highly of your views and arguments.
Armidale, N. S. W., April 3. JOHN S. RUTTER.

I have used the remedy you so kindly advertise and circulate. This will be a great blessing to many. I was a fearful sufferer from dyspepsia and nervousness, which has been cured by this treatment.
CAPT. KEMP, Salvation Army.
Negaunee, Mich., May 1.

The bees you shipped me about a week ago arrived in good order, and are working finely. The queen is all right. They are really fine bees. They will not sting. I am well satisfied, and will favor you with my orders in the future, if I need any thing in your line. W. E. RAYLEY.
Cambridge, O., April 28.

NEW AUTOMATIC
ZINC PERFORATOR.

I am now able to supply zinc with the round-end perforations in 16 styles of opposite and alternate perforating. The new machine makes any size of sheet, with a border of any width from 2x5 inches up to 24x44. The work done has

NEVER BEEN EQUALED,

is uniform, exact, and perfectly reliable. Prices very low. Send stamp for samples. Address

DR. G. L. TINKER, New Philadelphia, O.

5tfd Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE, KEITH & SCHMIDT CO.,
New London, Wis.
21-12db

responding to this advertisement mention GLEANINGS.

The Greatest Invention of the Age!

BEES MADE TO HIVE THEMSELVES.

Full particulars free. Address
5-tfd **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

A Bee-Hive Free

From all objections. For description and prices see our circular. One-piece V-groove sections, per M., $3; 3000, $8.50; 5000, $13.75. Brood frames, L. size, $1.00 per 100. Hunt's foundation, Bingham smokers, Abbott honey-knives, Hill's smokers and feeders, 10,000 Parker foundation fasteners on hand. Send for price list. **W. D. SOPER & CO.,**
118–120 Washington St., **Jackson, Mich.**
19-17d Please mention this paper

FLORIDA NEWSPAPERS FREE

We will send the "South Florida Home" six weeks on trial for 10 cents and insert your name in our "Mailing List", which will bring you hundreds of sample copies of Florida newspapers, maps, circulars, etc., and if you want to visit or locate in Florida, you can decide where to go and how to get there. Address HOME, St. Petersburg, Fla.

TESTED ITALIAN QUEENS, $1.00.
UNTESTED, 60 CTS.
SELECTED TESTED, $1.50.
STUARD BROS.,
9 17d **Sparta, White Co., Tennessee.**
Please mention this paper

IMPORTED QUEENS.

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.
CHAS. BIANCONCINI,
1-11d **Bologna, Italy.**
Please mention this paper.

PATENT WIRED COMB FOUNDATION

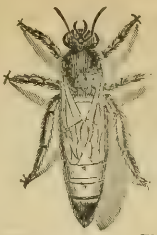
HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.
J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.



CHEAP ENOUGH.

Sections, $3.00 per 1,000. Foundation, 45 cts. per pound; Chaff Hives, $1.25 each; Simplicity hives, 90 cts. each; Dovetailed hives, 80 cts. each, and every thing needed in the apiary, cheap. Send for illustrated price list for 1891, free.

"How I Produce Comb Honey," by mail, 5 cts. Third edition just out. Address
GEO. E. HILTON, Fremont, Mich.
3tfdb Please mention this paper.

ITALIAN 100 *QUEENS.*

Untested Queens, 75 cts. each. $6.00 per dozen. Now ready to mail. 9tfdb
H. Fitz Hart, Avery p. o., New Iberia, La.

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ∻ SEND ∻ LONG ∻ DISTANCES?

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.
ESTABLISHED IN 1884. 7tfd
Please mention this paper.

Bee-keepers, Look Here!

Leininger Bros. are going to rear 1000 Queens this year from one of G. M. Doolittle's best queens; and if you want bees for

Business & Beauty Combined,

try one of their queens. In June, $1.00; tested, $1.70; select, $2.50. The very best, $4.50. Descriptive circular free. 10tfdb
LEININGER BROS., FT. JENNINGS, OHIO.

☞In responding to this advertisement mention GLEANINGS.

We are making arrangements for the agency of those

WONDERFUL PUNIC BEES,

brought to England by "a Hallemshire bee-keeper," and are now booking orders at the following rate:
Imported queens, $40.00 each.
Tested pure homebred, $5.00 each.
Virgins, $1.00; ½ doz., $5.00; per doz., $10.00.
Send for Punic circular. 10-11d
E. L. PRATT, Pratt Bee-Farm,
Beverly, Mass.

☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiaries.

Untested Italian and Carniolan Queens, for May and June, $1.00 each: after, 75 cts. 10tfdb

BEES for BEAUTY and BUSINESS.

Purity and safe arrival guaranteed. Address
WINDER & SIPLES, 576 MAGAZINE ST.,
NEW ORLEANS, LA.

responding to this advertisement mention GLEANINGS.

WANTED!

In exchange for queens, 20 lbs. of bees, any race, but no foul brood. I will give one young tested three or **Five Banded Italian** Queen (to be sent the fore part of June), for every pound of bees sent me **now, charges paid.** If you wish queens of either strain, and can spare the bees, drop me a card, and send at once. Reference, postmaster or express agent here. Send bees at once. Address
JACOB T. TIMPE, 9tfdb
Exp. and P. O. Address, **Grand Ledge, Mich.**
Please mention this paper.

HONEY COLUMN.

CITY MARKETS.

COLUMBUS.—*Honey.*—Choice clover, 20c. Market bare. Nice goods would sell readily. Dark and extracted not wanted, as there is no sale at any price.

EARLE CLICKENGER,
June 7. Columbus, Ohio.

ST. LOUIS.—*Honey.*—Comb market unchanged. Extracted and strained, slow at 6c here in barrels; 7½ in cans. Prime beeswax, 28½.

D. G. TUTT GROCER CO.,
June 8. St. Louis, Mo.

KANSAS CITY. *Honey.*—Choice one-pound comb honey out of the market. Dark one-pound comb, 12 cts.; two-pound, 11 to 12 cts. Extracted, white, 7 cts.; dark, 5 cts. *Beeswax*, 28 cts.

June 8. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

SAN FRANCISCO.—*Honey.*—New honey not in yet; old scarce at 5½@6. Comb honey sold out. *Beeswax* scarce, but less demand. 25@26c.

SCHACHT, LEMCKE & STEINER,
May 25. San Francisco, Cal.

CHICAGO.—*Honey.*—Not any comb honey on sale. Some nice white would bring 17c. Extracted, quiet at 7@8c. *Beeswax*, 28c.

June 8. R. A. BURNETT,
161 S. Water St., Chicago, Ill.

DETROIT.—*Honey.*—None in market to quote. *Beeswax*, firm, 29@30c. M. H. HUNT.
Bell Branch, Mich., June 8.

KANSAS CITY.—*Honey.*—No choice white 1-lb. comb on the market Plenty of 2-lb. comb and extracted, both very slow sale 2-lb. comb we quote at 10@12c; extracted, 6@6½. *Beeswax*, 25@27c.

June 9. CLEMENS, MASON & CO.,
Kansas City, Mo.

FOR SALE.—I have a lot of honey in 60-lb. tin cans, two cans in a case, which I wish to dispose of. I have also comb honey in one-pound sections.

Write. J. D. ADAMS, Nira, Ia.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

UNTESTED QUEENS,

until June 1st, $1.00; after June 1st, 75 cts.; $8.00 per doz. Tested queens, after June 1st, $1.50. Select tested, $2.00. Bees by the pound until June 1st, $1; after June 1st, 75 cts. Can supply any demand from first of May. Untested, in May, $9.00 per doz. 8tfdb

PAUL L. VIALLON, BAYOU GOULA, LA.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN

BEES AND QUEENS.

QUEEN-REARING a specialty. This race of bees are the gentlest, most prolific, and the best of honey-gatherers. Don't fail to send for circular. Address 11tfdb

A. L. LINDLEY, Jordan, Ind.

Please mention this paper.

SEND to M. S. West, Flint, Mich., for circular of Bee Supplies. Wax made into foundation. 10d

---

ITALIANS Tested queen, $1.25; Untested, 80c. Nuclei, brood, and bees by the lb. Send for price list.

MRS. A. M. KNEELAND,
9tfdb Box 77. Mulberry Grove, Bond Co., Ill.

☞In responding to this advertisement mention GLEANINGS.

DRY BROOD-COMBS.

I have for sale about 160 Simp. brood-combs, about ½ wired. Price 10c each; or $15 cash for the lot. Must be sold before July. Also lot of new and second-hand bee-supplies, hives, crates, sections, etc. Correspondence solicited. 12d

G. WIEDERHOLD, Yonkers, N. Y.

Please mention this paper.

HONEY QUEENS.

Bred from two of A. I. Root's selected queens, now as follows: Warranted (mated to Italian drones), $1; 6 for $5.00; tested (young) $1.75; select, $3 to 5. All this season's rearing.

FIVE-BANDED ITALIANS

at above prices. Sample bees of either, 5 cts. Safe arrival guaranteed. 12tfdb

JACOB T. TIMPE, Grand Ledge, Mich.

Please mention this paper.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.

The oldest, largest and cheapest Weekly bee-paper

THOMAS G. NEWMAN & SON,

246 East Madison Street, - CHICAGO, ILL.

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED—To exchange foundation, both light and heavy, for any quantity of wax. 10-11-12d

B. CHASE, Earlville, N. Y.

WANTED.—To exchange Simplicity hives, and L. frames, filled with combs, nearly all worker, for bees, any breed, or Barnes foot-power saw.

11tfdb L. W. NASH, West Kennebunk, York Co., Me.

TO EXCHANGE, a one-horse ensilage-cutter, or Brown Leghorn eggs, for a small hand hay-cutter, or offers. A bargain for some one. 10-12d

C. W. COSTELLOW, Waterboro, Me.

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To exchange pen R. C. B. Leghorns and strawberry-plants for bees.

12d F. L. WOTTON, Darien, N. Y.

WANTED.—To exchange a complete Horsman's photographic outfit No. 2, for one stand of Italian bees. Correspond. Address

JAS. R. HUGHES, 323 N. 9th St., Richmond, Ind.

WANTED.—To exchange pure Scotch collie pups for tested Italian queens. 12tfdb

N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange a 10-inch Pelham fdn. mill, a Wilson No. 1 bone and feed mill, bees, honey, and supplies, for a small printing-press, shotgun, wax, or offers. Send for price list to . 12tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

WHAT am I offered in exchange for a complete printing-outfit? 12x18 Golding jobber, 6x10 Nonpareil, 2 H. P. engine, type, etc.; cost about $800.

12-13d CYRUS MCQUEEN, Baltic, O.

Brother Bee-keepers,

Try 500 or 1000 of our No. 2 Sections, only $2.00 per 1000. They are extra nice. No. 1, $3.00; 8-frame hives, 2 supers, 90c; 10 for $8.00. Every thing cheap. Send for list, free. 12d

W. D. SOPER & CO., JACKSON, MICH.

☞In responding to this advertisement mention GLEANINGS.

NICE QUEENS

ready to mail, 75 cts. Reared from a Doolittle Select Mother, by his method, ½ doz., $3.25; doz., $6.00. Safe arrival and satisfaction guaranteed. 12tfdb

JOHN B. CASE, PORT ORANGE,
VOLUSIA CO., FLA.

☞In responding to this advertisement mention GLEANINGS.

SUPPLIES.

Standard goods, best shipping-point, reasonable price. 30-page catalogue free.

WALTER S. POUDER, 175 E. Walnut St.,
6-18db Indianapolis, Ind.

YELLOWEST ITALIANS.

My bees are the brightest and gentlest bees, and for honey-gatherers are equal to any. Send 5 cts. for sample and be convinced. One queen by mail, $1.00.

J. F. MICHAEL, German, Darke Co., Ohio.

Please mention this paper. 11-16db

OTTUMWA BEE-HIVE FACTORY.

We have a nice supply of hives in the flat, which we will sell as follows: The A. I. Root Simplicity, for extractor, $1.50; 5 for $7.00. Simp. for comb honey, with 2 T supers, sections, foundation starters, wood separators, and honey-board complete, in flat, each, $2.10; 5 for $10.00. Portico hive with Simplicity upper story, in flat, for the same price.

The improved Langstroth-Simplicity, in flat, eight-frame, 1½ story, each, 90 cts.; 5 for $4.00; ten-frame, 1½-story, each, $1.00; 5 for $4.50; eight-frame, 2-story, each, $1.20; 5 for $4.75; ten-frame, 2-story, each, $1.30; 5 for $5.25. Dovetailed hives, the same price as the eight-frame hives above.

SHIPPING-CRATES.

12-lb. crate, 11 cts. each; 16-lb., 13 cts.; 24-lb., 14 cts.; 48-lb., 16 cts. each.

Comb foundation.—Heavy brood, 48c; thin, 58c; extra thin, 68c.

Pound sections, snow-white, at $3.50 per 1000. No. 1, cream, $3.00. Bee-veils, cotton tulle, with silk tulle face, 75 cts. each. Bingham smokers at manufacturer's prices. Write for prices to 5tfdb

GREGORY BROS. & SON, OTTUMWA, IA. SOUTH SIDE.

☞In responding to this advertisement mention GLEANINGS.

Guaranteed to Give Satisfaction.

Untested queen, 70c. Tested, $1.00. Queens that swarm 1 year old, 60c each. All Italian, and good honey-gatherers. Ready to mail. 11-12d

W. J. JOHNSON,
ACKERMANVILLE, NORTHAMPTON CO., PA.

☞In responding to this advertisement mention GLEANINGS.

THOSE ALBINO ITALIANS

are the easiest kept from swarming, and are the gentlest bees. Try one. Tested queens, $1.25; select tested, $1.75; warranted 75c each. Safe arrival guaranteed. 12-13d JOHN MOSER, FESTINA, IA.

☞In responding to this advertisement mention GLEANINGS.

Carniolan Queens, Bred from an Imported Mother.

Tested - - - - - - - $2.00
Untested - - - - - - - - .75

CORNELIUS BROWN, Box 61, **Dayton, O.**

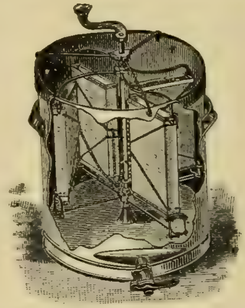
Please mention this paper.

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.

M. S. ROOP, 520 East Broadway,
6-17db **Council Bluffs, Ia.**

☞In responding to this advertisement mention GLEANINGS.



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

Bee-Keepers' ❊ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

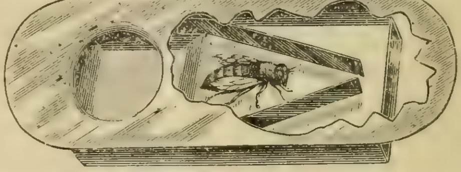
☞In responding to this advertisement mention GLEANINGS

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



☞In responding to this advertisement mention GLEANINGS

A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. JUNE 15, 1891. No. 12.

STRAY STRAWS

FROM DR. C. C. MILLER.

GLOVES AND APRONS might be discussed, for variety, by the ladies.

PROPOLIS. W. E. Burkitt (*B. B. J.*) uses vaseline to prevent propolization. Heddon says tallow.

CURE FOR ANTS which make their nests on quilts. Throw away the quilts, and use flat board covers.

THE *British Bee Journal* insists strongly that beet sugar is not the same as cane sugar, and is dangerous bee-food.

HENRY ALLEY says: "A good queen will average to lay not far from 1200 eggs each twenty-four hours from April 1 to Sept. 20."

BROTHER ROOT says aluminium rules will float, if carefully laid on the water. Any common fine sewing-needle will do the same thing, and it's a curiosity well worth seeing.

BEAUTY IN BEES is not what we are after—it's the big crop. Still, I'd rather have *just a little* less honey, and enjoy looking at the beautiful bees every time I handle them.

INTRODUCING A QUEEN, J. H. Larrabee says in *Review*, is more successful if the queen to be removed is first caged in the cage to be occupied by the stranger, so as to scent the cage.

CLIPPING QUEENS' WINGS. W. Woodley (*B. B. J.*) says, "I believe the practice is dying out in America—very few of their progressive bee-men are doing it now." I wonder if that isn't a mistake.

NEIGHBOR H. says colonies with imported queens winter best. Last winter mine didn't, 100 per cent of such colonies dying. Perhaps I ought to add that I had only one, and that starved to death.

PRICE OF HONEY. We may as well settle down to the belief that high prices for honey are among the things of the past. With bare markets the past winter, the price has never gone beyond 15 to 20 cents for best white.

CROSS BEES abounded so much, the other day, at the Hastings apiary, that it was emphatically unpleasant. I afterward decided that all the cross ones came really from one hive, and the queen of 239 was doomed. But, what workers they were!

LIKES ITALIANS. Ila Michener (*C. B. J.*) gives an interesting account of his experience with black bees, Italians, Syrians, and Carniolans. He has finally given up all but Italians, and says he has "drawn a long breath and feels happy again."

IF CROSS BEES trouble you, and chase you all over the apiary, watch closely and see if they don't come from one particular hive, after you have disturbed it. Then take the queen of that hive, and mash her up very fine.

"PREVENTION OF SWARMING" is a caption that always makes me prick up my ears. Then the instructions for prevention commence something like this: "When the swarm issues," and down go my ears, limp as before. What I want is to know how to prevent the swarm issuing at all.

EXCLUDER ZINC for virgin queens should be made with smaller holes than that for laying queens, according to some statements. Is the thorax of a queen really any smaller before commencing to lay than after? For it is the thorax, and not the abdomen, that hinders a queen from getting through.

IN THE PRODUCTION of comb honey I doubt whether there is a profitable method of preventing swarming. It may be discouraged by giving as much surplus room as possible; but foundation does not equal drawn comb as a discouragement to swarming.—*Hutchinson, at Ionia Convention* (*A. B. J.*).

WAX SCALES, Hutchinson says, are not found on the bottom-board when a swarm is hived on full combs, because the bees stick them on the combs. Well argued; still, they don't stick on the old combs a fourth the wax they would use if they had no combs. What becomes of the rest, if secreted whether needed or not?

"REMOVE A HIVE about noon, when most of the bees are a-field, and put in its place another hive, and the returning bees will join the new colony." Yes, but why the constant advice to remove at noon? Try moving at midnight, or any other time, and see if you will not have just as many bees join the new colony.

W. P. HENDERSON, after years of careful selection, has succeeded in producing worker bees not excelled by any thing I have ever seen, beauty of coloring being standard. As to quality otherwise, he is candid enough to say, "If they make any more or less honey than common bees, or winter better or worse, I haven't discovered it."

RENEWING COMBS. A correspondent of the *B. B. J.* asks how to renew combs three or four years old, and the reply shows that the editor thinks it is all right. Ought we not to come to an understanding? Either we are away off in keeping combs twenty years, or they are making great waste in melting up combs having no other fault than three years' age.

THE PUNIC (OR AFRICAN) BEE is described by "A Hallamshire Bee-keeper" in *A. B. J.* as something truly wonderful. Ebony black; smaller than the common black; gentlest and hardiest known; get more honey than any others; live longer; a strong colony can be divided into twenty at the end of May, and each will build up in a good season, without feeding, into a ten-frame colony well stored for winter, and yield one or two twenty-pound supers of honey from the heather; fill sections fuller, and cap them whiter than others; eat the hardest and driest sugar; non-robbing, and leave 200 to 600 queen-cells at swarming. I believe an imported queen can be had for about $40.

GENERAL CORRESPONDENCE.

SHIPPING FULL COLONIES OF BEES BOTTOM SIDE UP.

PLAN OF SHIPPING BEES ANY DISTANCE, IN ANY WEATHER, AND BY ANY CONVEYANCE.

Slide the hive back on the bottom-board and close the entrance, Fig. 1. Remove the cover, but not the cloth; lay on an extra bottom-board, face side down, 2. Fasten with screws, 3, into each side of the hive. Take hold of the front end of the hive and turn it on the end, following the direction of arrow, *a;* then turn again till it rests with the top side down, Fig. 2. Have a piece of bunting (cheese-cloth), 4, ready, which should be four inches larger each way than the hive, and spread it over the bottom of the frames, 4, having first removed the bottom-board. Now slip on the wire band, Fig. 3, and crowd it down over the bunting and hive about an inch, 5. Have ready a block, 2x⅞, and as long as the hive is wide, with a sufficient number of holes to accommodate the number of frames you have in the hive. Fasten this at each end with an eight-penny wire nail, then slip a ten-penny nail down the side of each frame, to hold them so they cannot swing sidewise.

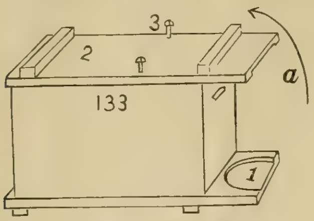


FIG. 1.

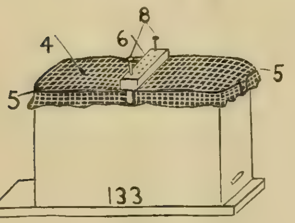


FIG. 2.

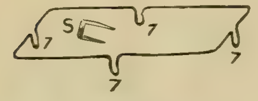


FIG. 3.

A PLAN OF SHIPPING BEES UPSIDE DOWN.

You may now load into a wagon or any other vehicle all the hives you have so prepared, and drive on the run, if you wish, to any distance desired, and no bees will be killed, no comb broken, no bees getting out to sting the horses. When you are to ship on the cars, wire cloth is to be used in place of bunting, with a few carpet-staples over the wire hoop. I have shipped bees in July, when it was 100° in the shade, a distance of 18 miles, and warranted their safe arrival, and in a common lumber-wagon. They reached their destination in good order. The hoop should be made of tinners' stiff bale wire; and the loops, 7, 7, 7, 7, should be put in so the hoop may spread to accommodate itself to any variation in size of hive, and should be turned down, and not stand out at right angles with the hive, as that would interfere with close packing. J. W. PORTER.

Ponca, Neb.

[Although you do not say so, I presume the reason why you turn the hives upside down is to get the heaviest part of your combs—that is, the part holding the sealed honey—next to where the bottom-bar was formerly. This brings the empty part of the combs to the top. I have no doubt there is an advantage in this. It seems to me, however, that the work required to get colonies in this condition more than counterbalances the advantage.] E. R. R.

PUTTING ON SECTIONS, ETC.

DOOLITTLE GIVES US SOME VALUABLE HINTS AS TO THE TIME OF PUTTING THEM ON.

A correspondent writes: "Will you please tell us in GLEANINGS just how we may know the right time to put on the sections or surplus arrangement to our hives, so that we may secure the best results in honey? I am a novice at the business, and should like to have you explain minutely in regard to this matter."

In the first place, I would say, that, if our correspondent does not have one of the many good bee-books of the present, he should at once procure one, and this will tell him more of the minutiæ of bee-keeping than is expected to be found in any article written for the press.

If we have our sections all in readiness to go on the hive, each having a nice starter in it, and all in the surplus arrangement, we have only to wait till the time is ripe for putting on the sections. If we are not thus in readiness, the first thing is to become so. I do all of this preparatory work during the winter months; and from past experience I would advise every one else to do the same thing, no matter if we do have a few more dollars invested in this way than we should just like, when not knowing how our bees will winter, or what the harvest will be. I find that, in the long run, this course pays much the best. Having them all in readiness we are to decide when to put them on the hives. To know just when to do this is often difficult; for, if put on too early, brood-rearing is materially retarded; and if put on while there is no honey coming in, although there may be plenty of bees so the brood does not suffer, these bees, not having any thing to do, will often go into the sections, and, apparently bent on mischief, will amuse themselves in gnawing down the foundation starters, thus causing a delay in entering the sections for work, when the harvest does arrive. The rule which was given me when I commenced bee-keeping was to put on the sections when the white clover came into bloom; and for the bee-keeper who uses box hives, or the one who never handles his frames to know what condition his bees are in, perhaps this is as good advice as can be given, although many hives may have sections put in them when the bees are so few in numbers that they may not enter the sections during the whole season. Most apiarists, however, handle their frames, and know the condition of each hive, and can ascertain when the hive is full of brood, and bees are sufficiently plentiful to protect the brood after the sections are on, even if a cold snap should come, putting them on those that are thus ready, and leaving the weaker ones till they are ready also. To show what I mean, P. H. Elwood once wrote me that his bees were not in the shape that he wished them, about June 10: "for," said he, "about a third of them will be ready to take advantage of the clover; a third more, with the first third, will be ready for the basswood, while the remaining third will not be strong enough to work to advantage on any thing but buckwheat." Don't you see what a waste it would have been to put the sections on all of those bees according to the advice given me when I started in beekeeping?

But we will suppose that our bees are strong enough to enter the sections, and clover is in bloom—shall we put them on? No, not till honey is coming in. One year, in which my average yield from the whole apiary was over 100 lbs. of comb honey from each old colony in the spring, the sections were not put on till July 15th, for, previous to this time, the bees were living only from "hand to mouth:" being so short of honey that a week of rainy weather would have starved the whole thing had I not come to the rescue by feeding. When we have all in readiness to go on the hives, as I gave at the outset, 100 hives can be supplied with the surplus arrangement so quickly that no time need be lost after the flowers begin to yield honey. My plan is to go along the fronts of some of the strongest colonies, each day, and, by the actions of the bees, tell whether they are gathering honey or not; but where one is not sure that he can tell in this way, it is a good plan to wait about putting on the sections till you find little bits of comb started about the hive, and honey being put into them, or the cells being lengthened out along the top-bars of the frames, and honey being stored there. When you see this, and your colonies are strong enough to enter the sections, don't delay putting the sections on such hives a single day; for if you do you will be losing honey more than what is coming in at this time, for the bees may go to crowding the queen, and thus be slow in working in the sections all the rest of the season. Another item is, don't put on too much surplus room at once, but put on a capacity of from 15 to 25 lbs., according to the strength of the colony, and as your surplus arrangement will allow. One of the favorable things about the Manum clamps lies in the fact that he can put on one, two, or more of them, as he desires, at a time; and I believe this has much to do with his success. With the wide frames as I use them, I can do the same thing; and when the bees are well at work in these, more are added, and so on till the full capacity of the hive is reached.

From many experiments I have come to the conclusion that 60 lbs. capacity is about right for a good strong colony, when worked for section honey, and 120 lbs. when worked for extracted honey, exclusive of the brood-frames. In putting on sections it is well to have a part of those first put on filled with comb left over from the previous season, so as to start the bees at once to storing above. Don't wait till your bees swarm before putting on the sections; as some do, fearing that the sections will retard their swarming, for bees often refuse to swarm, and hang idle on the hive all summer. Swarming is retarded but very little, if any, where the sections are put on as above. Always keep an eye to business, never forgetting that a thing done in the right time brings success, while a delay of only a few days may turn that success into a failure. G. M. DOOLITTLE.

Borodino, N. Y., June, 1891.

THE EXPERIMENT OF MOVING A CARLOAD OF BEES FROM NEW YORK TO COLORADO.

HOW THE BEES WERE SHIPPED SUCCESSFULLY 2500 MILES IN THE DEAD OF WINTER.

Friend Root:—When I first reached this place with my bees I wrote you a card saying I had met with unexpected success in getting them here. I have now to report unexpected failure to keep the bees in good condition after getting them here. I have lost over half of them from spring dwindling, and those left are weak; but I have bought as many as I have lost, and propose to know what the honey resources are here, and hope to be able to winter them here all right. I believe they will breed very much longer here in the fall, and thus go into winter quarters with many more young bees in each hive.

It has been an unusually late and backward spring here, I am told, although bees that were wintered here seem to be almost ready to swarm. Alfalfa is knee high, and will begin to blow out in a few days. Wild flowers are quite plentiful already.

I will now give you an account of how I prepared my bees for shipping, and brought them through so well, nearly 2500 miles, with the loss of only seven stocks, and very few dead bees in each hive. There were only six or eight combs loosened from their frames in the whole lot, and yet there was not a wired comb among them. A very large share of the combs were those that had been transferred from box hives, and were, of course, fastened all around—an important factor in keeping them whole.

Last fall, some weeks before the hives were prepared for the cave in which I wintered them, I took burlap, old carpet, etc., and folded it so as to fill the space between the frames and covers, so that the covers, when pressed down, would hold the frames secure. Then I took a strap of sheet iron, and bent over the cover and screwed one end to each side of the hive, setting the screws so that they drew the cover down tight. I then took old burlap and cut it up in strips about four inches wide, and dampened them with water so that they would pack tight; then I turned the hive bottom side up, and, with a broad-pointed putty-knife, packed the burlap, that had been dampened, between the ends of the frames and the hive in such a way that the frames were held very firmly. This at the same time made a cushion that broke the jar of the train endwise, as when coupling cars and stopping and starting the train, which at times was very severe, so that it seemed as if every frame must be broken, so great was the shock and jar as the cars came together.

The bees thus prepared were ready for the cave in which they were wintered. I then took a half-story full of empty comb, and prepared (to put under each hive) in this way. I covered one-third of the bottom with wire cloth, and the remaining two-thirds I covered over with half-inch lumber, nailed on so as to leave a chance for the air to circulate under each hive clear across it, the wire cloth being above the strips of lumber, so that, when the hives were piled on top of each other, the air could circulate clear through under each tier of hives.

The wire cloth and strips of wood were fastened on the bottom of each one of the half-story hives during the winter; and lugs made of sheet iron were screwed to the sides of each one, and left so that a single screw on two sides would fasten them to the hives when ready to ship.

The bees were taken from the cave, or cellar, the last of February, and placed on summer stands for a cleansing flight; but the weather not being quite warm enough, only a few of them flew, although they were out over two weeks. March 11th the half stories were all placed under the hives, and fastened, except six colonies that began to fly before we could get around to them; and the afternoon of that day coming off very warm, those six colonies had a very thorough cleansing flight. I then thought those were in the best condition of any for the long trip, and I felt that, had I delayed my trip one day longer, it would have been very much better for all of the bees; but now every one of those six colonies is dead, and they were among the very best I had. This has been a very great surprise to me, as I believed with others, that a cleansing flight just before starting them would be very beneficial to them.

On the 12th they were hauled to the depot, 16 miles, over one of the roughest roads one could imagine, and loaded in the car. At 8 A. M. of the 13th they were started, and reached here at 5 P. M. on the 21st, and were all unloaded before daylight of the next day, so that they had a flight on the 22d, and seemed stronger than when I started with them. There were but a very few dead bees in each hive, and I fondly hoped I should be able to save very nearly all of them; but they very soon began to die off in large numbers, and the result has been as above stated. It will be some weeks or months yet before I can demonstrate whether or not it will pay me for the very great expense of the undertaking in removing my apiary to this place, while I have so many interests and cares that need my attention in Windham, N. Y., a little of which Ernest and wife saw while with us last season a few days. O. R. Coe.

Fort Collins, Col., May 26.

NON-SWARMING BEES

FOR DOMESTICATION, AND ITS RESULT.

In Gleanings, April 1, Mr. Geo. F. Robbins has an article on "Prevention of Swarming," in which I believe he makes some erroneous deductions. He says: "Mr. F. S. Wallace, of Clayton, Ill., like the Dadants, is troubled very little with swarming. I had several of his queens in my apiary last summer, and not one of them exhibited any disposition to swarm, although two of them were run for comb honey, and one of them never saw more than six frames. Such bees are apparently of more contented disposition, less aggressive and enterprising, and therefore, perhaps, if the truth must be told, *of less account than the bees of the opposite kind.*"

I believe such bees are of more account. The reason they are more contented is that they have become *domesticated* and tamed, which renders them more valuable. In time, all of the bees that are being cared for by man will exhibit a quieter disposition, and become more tractable. A wild animal of any kind will expend much of its energy in fretting and rebelling against authority. Any one who has ever worked or tried to work a broncho horse will realize how much less valuable he is than a gentle domesticated brute. The latter is certainly not less valuable because he does not kick, and show a disposition to run away. Bees that have their hives provided for them generation after generation will in time cease to hunt up new localities, and will quit swarming if they have a fair chance at home. But they will be just as valuable, and more so, for honey-making than their worrying discontented cousins. Another change may be looked for. It is one of the facts of domestication, that it follows the law of evolution and carries its subjects from the homogeneous to the heterogeneous. Under its influence, modifications take place and new varieties spring up. Wild turkeys, like wild bees, are homogeneous in color, size, and character. When tamed they undergo variation in all these respects. So it will not be long—and there are indications of it now—that we shall have red, white, brown, or yellow bees, some strains of which will be much larger-bodied than any at present in existence, just as the bronze turkey is greatly superior in size to his wild progenitors. C. H. Murray.

Clay City, Ill., Apr. 10.

BEE-KEEPING AND GARDENING DURING A SEVERE DROUTH.

A GLIMPSE OF A WISCONSIN DROUTH.

Friend Root:—I received your postal a short time ago, about celery-plants. As much as I need them, I can not get them until we have rain. It is now June 1. We have had no rain this spring yet. Every thing is completely dried up—not a garden or flower seed growing. Potatoes and corn are not sprouted; grass is all dried up, with every prospect of grain crops being a failure. The ground is dry two feet deep; no water in the river to run mills, and apparently the end is not yet. If we get a rain I will send for plants.

In consequence of the excessive drouth there is no feed for bees. There have been a few dandelions, but they are about all gone. Frost cut fruit-bloom, and there is not a bit of alsike or white clover growing. I am feeding sugar syrup every other day, to keep them brooding. At present the outlook for honey for the season is very unsatisfactory. I am not discouraged, as I am able to feed them; but I think many in this part of the country will give it up in disgust. Quite a number last winter lost all—others lost heavily. My neighbor lost 20 out of 40. I lost none; and if feed and care will do any thing to help it, I shall lose none this year.

Clintonville, Wis., June 1. Daniel Noble.

[The above gives so vivid an idea of what it is to be destitute of rain, and without water for irrigation, that I have decided to give it a place. We had a little glimpse of such a state of affairs here in Medina. Our plant-beds that contained lettuce that was just ready to head, and cauliflower almost ready to make heads also, with lots of other vegetable crops that cost lots of money (for we spent a good deal of labor in moving sash during these recent frosts), would have gone to naught had not the windmill come to their aid. With hard drying winds and a fierce sun, it seemed as if a tremendous drenching were needed almost every 24 hours. We managed to make them grow, however, by a good watering once every other day. It seems to me as if I never before realized how much water is really needed to make a crop. Why! with the exception of a shower on the 30th of April we had no rain here from the 11th of April till the 20th of May—a time of all the year when we need it most. On this last date we had a good shower, and then another the next day. Then we had a day of sunshine with drying winds again, and it seemed as if our two good showers were gone. The ground was rapidly becoming as thirsty as it had been before. Then, on the 23d of May, came one of our tremendous rains; then came more on the night of the 25th; then followed a steady rain on the 29th. More followed the night of the 1st inst. Then at 11 o'clock on the forenoon of the 3d came one of our tremendous rains, that came down in such volume that the water poured down the roadsides, and even commenced to break through the furrows that run crosswise on the side-hill. It seemed for a time as if we had almost too much: but in 24 hours more I decided it was exactly what was needed. The ground is now as thoroughly soaked as it was last spring; and, oh how things do grow! Our 2000-barrel cistern, under the united roofs of all our buildings, for the first time in its history is filled, or was filled, within an inch of the outlet. And this is all *rain* water. With our hydrants mentioned in our last issue, this immense volume of rain water in one sense hangs right over our plant-garden; and if more is wanted, the windmill tank on the hill is ready to pour out *its* contents. What a blessing is water in abundance! And now, friend N., we hope the big rains have extended clear to your Wisconsin home, as well as everywhere else.]

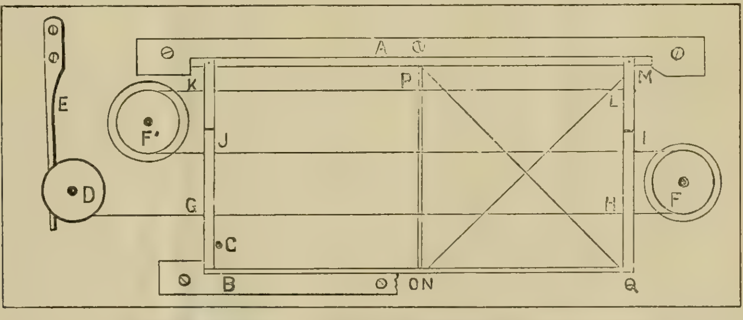
FRAME TOP-BARS.

WIRE, AND TIN BARS.

Friend Root:—On page 424, in your foot-notes to my article, you ask where I saw in the journals, three years ago, that top-bars ⅞ inch square would prevent burr-combs. The word *three* in my article should have been *two*, as is evident from the next sentence. On page 758, Oct., 1888, you declare in favor of ⅞ inch as the proper width of top-bars to prevent burr-combs; and add, that "extra thickness up and down will certainly help in the matter," referring, as evidence, to Mr. Hall's experience with top-bars over one inch thick. You did not give the width of his top-bars; but the inference was, that it was ⅞. On page 669, 1889, and in other places, friend Heddon is very positive in recommending ⅞ as the width for all top-bars, including thick ones; but will you not both please pardon my hasty expression with reference to "the testimony and advice of those who claimed to know"?

I was, at the time, under a wrong impression, but this is not sufficient excuse for a remark which I now see looks like an unkind reflection; for I think you were both sincere. You say, "We do dot disagree, unless it is in the use of the folded tin bar and the extra thickness." Good! but I must insist that, *when properly used*, the tin bar has no objection worth considering; but while it renders a thick top-bar unnecessary, it insures a still more perfect bee-space by holding the middle of both top and bottom bars exactly in line.

You say, "In order to keep from dropping out, the folded bar must be a little long." No, sir. It must be just right, and the top and bottom bars must be drawn tight against the ends of the tin bar by passing the wire through the bar between the folds of the tin, which is quickly and easily done. One serious objection I have to your frame is, there is nothing to prevent the bottom-bars from sagging. This, in time, causes trouble, especially when the frames are used in an upper story. Some of the unwired frames I have used from six to twelve years now have bottom-bars so bowed down in the middle that they almost rock on the lower frames. The combs seem to have a tendency to stretch and settle down after being built down to the bottom-bar. I imagine that the tension of horizontal wires on end-bars will aggravate this difficulty. I can't see why your bees ever avoid the tin bars. Mine never do. They build the ceiled honey and brood over them so perfectly that you could hardly tell that a *completed* comb has a tin bar in it. I coat the wire and tin bars with wax and rosin just before imbedding them in the foundation, and am careful to imbed the bar as well as the wire. This makes the thin foundation which I use adhere perfectly, and it is much cheaper and better than the heavier foundation with less wire. The accompanying sketch shows my present method of wiring. The cleats A and B are screwed to a board in such a position as to hold the frame between them perfectly true every way. The pin C holds that corner in the notch in B. D is the spool of wire which turns on a pin which is inserted in the board. E is a wooden spring, bearing on the spool to keep it from turning too easily while the wire is being drawn off. FF′ are pulleys, with flanges on their lower edges, around which the wire passes as it is being drawn through the holes in the end-bars. The end of the wire is first passed through at G, then at H, around F and through at I and J, around F′ and through at K, and out at L. The wire is then fastened to a small nail-nead at G, and that from the spool is cut off. There should now be wire enough to finish the frame. Draw on the end that comes through at L while the loops are slipped off from F and F′ and taken up. Now pass the end of the wire down through M, N, and O, and stretch it tight across over P. Now with the other hand place one end of the tin bar at O, and lay the wire in the groove in the bar between the folds of the tin. Now crowd the top end of the bar in place at P, just above the



FOSTER'S METHOD OF WIRING FRAMES WITH TIN BARS.

groove in the top-bar, with the sharp edges of the tin up, having the wire pass out from the end of the bar through a hook formed by bending the point of a small wire nail which projects through the top-bar at this place, and which is afterward clinched down into the wood. Now bring the wire down between the ends of the bottom and end bars at Q, and fasten it to the nail there, which has not yet been driven quite in. Drive this nail in, break off the surplus end of wire, and you have a frame that can not possibly get out of true anywhere.

Mt. Vernon, Ia., May 20. OLIVER FOSTER.

[The foot-note to which you refer (page 758, October, 1888), was dictated by A. I. R., and he had in mind ordinary thin top-bars. But this was some six months before the discussion relative to thick top-bars came up; and I scarcely see yet how you could get the idea from the reference above that a top-bar ⅞ inch square would prevent burr-combs. At any rate, a few months after, it was shown conclusively that extra *width* was necessary.—Oh no, friend Foster, I did not interpret your remark as an unkind reflection. I knew you too well to mind any thing of that kind; only I felt that *if* we had given you a wrong impression (on account of which you went to considerable expense), we ought to be warned so as not to make the same mistake again. Now about that tin bar. As you put it in covered with wax, it might not be objectionable; and perhaps we do not disagree at all, even including the tin bar. We never covered our tin bars with wax; but with our thick bars it is not necessary to use it; and with the Keeney method of wiring it is impossible for the bottom-bar to sag at all if the wires hold. So you see we are both aiming at the same object, but in a different way. Your method of wiring is very neat; and personally I should like it very much better than our old perpendicular plan. There are fewer holes through which to thread the wires, and the whole operation is much less trouble.] E. R.

HYBRIDS IN CALIFORNIA.

A CALIFORNIAN TELLS WHY NEW BEE-PAPERS DIE.

In May 1st GLEANINGS, Dr. Miller, in Stray Straws, says no new bee-paper had started that week; but he gives no account of how many had passed away. The fact is, they *must* pass away or the market would be glutted. I think I can throw some light on their downfall, that has never been even suspected. No sooner does a new bee-paper get well upon its legs—able to stand alone—than the infatuated and misguided editor writes to me and solicits a contribution. Everybody knows that I am good-natured—even to a fault. Then I put on my harness and give him one of my best—a real hardy, deep-rooted one that I have saved up for the Fourth of July, or some other festive occasion. Then the paper takes the spring dwindling. It dwindles on and on, until it dwindles into nothing. All my herculean efforts to save it are of no avail. I may thow into it enough intellect to save a dying dictionary—one that has outlived its day—but it all avails nothing. The more and the faster I write for it, the faster it fades away. Can Dr. M. or "any other man" explain this? I am really getting out of heart.

HYBRID BEES IN CALIFORNIA.

Away back in the 70's the Italian bee was introduced into San Diego County. At that time there was no other bee known here than the black. To the bee-keeper of that day it was *the* bee and the only bee in the world. Why! it would have made his head swim to hear you talk of Italians, Cyprians, Syrians, albinos, Carniolans, etc. He would have thought you were going crazy, or that you had been there all the time. But a change came o'er the spirit of their dream, and the Italian burst upon their enraptured vision like the first rays of the morning sun. Fabulous prices were paid for queens too—twenty, thirty, forty, and as high as fifty dollars. But, what of that? These Italians could jerk out and pile up the honey *every* year. Their honey-sucker was long—was like a rubber tube, only more so, and they could stretch it out to any length needed, to get the honey from *all* the flowers! Nearly all the long, deep, bell-shaped flowers grow along the water-courses, and many of them bloom nearly all the year round. The blacks could not reach the nectar. But the Italian, with his long rubber tube, could just muzzle all the honey in creation. There was money in it—loads of it. Why not? Couldn't the Italian gather honey all the year round? Wouldn't the whole year be one unvaried honey season? These stories, and many others more ridiculous still, were the tales that were sent out among the bee-keepers of that day, and they lost nothing on their journey. The further they traveled, the wilder they became. Was it any wonder they paid fabulous prices for queens? At that time little was known by the average bee-keeper in regard to Italianizing an apiary. To bring the precious lady home and turn her into a queenless colony was about all they knew. They were under the hallucination that they were producing honey, but they were really raising drones. Their hives were half full of drone comb, many of them more than half full. What would *one* Italian queen do, put in among five hundred such hives, and that without care, and without any attempt to control the hybrid drones? The few pure Italian drones *she* produced were like lost sheep in the wilderness. But she did something still; for the consequence was, in the end, the whole country was hybridized. All the wild bees in the mountains are hybrids. In fact, it is hard to find any black bees, or any pure Italians, for that matter, in San Diego County. These bees extend far up into the north; but bee-keepers there have now many pure Italian yards. It is held, I believe, by most bee-keepers east, that the hybrid (except the first generation) is a very successful failure as a first-class honey-gatherer. This may be true there; but the hybrids on this coast are a very extensive and remarkable exception to the rule. You fellows in the East talk of your four and five banded Italians—talk of them and blow about them as if *bands* were any thing to be proud of. Why! bands are just the every-day clothes of our hybrid bees. They wear three, four, and five bands, just as they can snatch them up, as they are hatched out. The fellow that has five bands is not proud at all—not too proud to associate with the poor creature that has only three. He would even associate with an Italian, if the Italian had the good fortune to belong to his own home. But he recognizes the fact that his comrade in arms was in such a hurry to gather honey that he did not take time to put on all his clothes! He knows, too, that it is not *bands* that gather honey, as some bee-keepers would have you believe. He knows that it is grit, vim, diligence, and perseverance.

Now, the first generation of these bees, so far as I can learn from many bee-keepers of that day, was no better and no worse as honey-gatherers than the ten thousandth generation is to-day. Here is a race of hybrids, then, of twenty years' standing, that have neither gone back to the Italian nor the black bee. More than that, when they "get down to scratch gravel" they can pile up as much honey as any bee that was ever hatched. They were not originated by "long years of careful selection," nor by "lying awake nights," but by neglect and mismanagement. J. P. ISRAEL.

Sumac, Cal., May 23.

[After friend Israel's candid confession in the first paragraph to the above, it became somewhat of a question as to whether we had better use his article or not. We have, however, decided to take the chances; and if GLEANINGS should get the spring dwindling in consequence, we will try to nurse it through till summer time. Friend I., I am inclined to think you have given us some important *facts* as well as some bright glimpses, from that rare gift of yours in the way of pleasantry. Go ahead. I do not believe it is *altogether* owing to your contributions that so many bee-papers have had the "dwindles."]

FRIEND TERRY'S STRAWBERRIES AT THE PRESENT TIME.

THE MAY FROSTS IN HIS LOCALITY, ETC.

Friend Root:—You may remember that, when you were here about a year ago, asking me why I did not put out five or ten acres of strawberries, and get rich, I did not make much reply; but in your report in GLEANINGS you told what you thought passed through my mind about spoiling the privacy of my home, etc., all of which was almost word for word what I *did* think. I was surprised that you could read my thoughts so perfectly. But there was one thought that you did not get hold of at all, that flashed through my head. It was this: This is not a safe locality for growing strawberries largely. One could make a great deal of money from five acres, perfectly tended to, of fine large berries, put into Cleveland when just right for eating, and only two or three hours from the vines, if the late spring frosts did not interfere. Last year they did not, and our success was all we could ask for. This year our half-acre went into winter in perfect shape. No pains were spared to give every plant the best chance possible. We mulched them heavily to keep them back; but, alas! the freeze of May 16th killed all the blossoms and many of the buds, and most of the leaves, and many of the plants themselves. The earth froze here from one to two inches deep. I actually dug up pieces of frozen soil in the morning, two inches thick. The Bubachs and Haverlands are just about ruined; all suffered severely, but, as usual, the Sterling stood the frost best. They are altogether the safest berry for our farm. I suppose in that one night we lost $200 worth of berries. The frosts early in May hurt us little, as our berries were mulched so heavily they had not started much. This loss does not trouble us, because we expected it sooner or later. We are liable to killing frosts until June, and even then feel a little unsafe until a week has passed. We were growing that half-acre of strawberries largely for the pleasure of doing our best on a little land, and not as a source of income. Now, do you not see that, if we had made a business of it, and had five or ten acres, we should have been hurt badly? I know these conditions to exist here, and have no right to put out a crop that it would cripple me to lose, and then blame Providence for bad luck. All these points have been studied most carefully. Our crops of potatoes, wheat, and clover, are almost perfectly safe. They have never failed to pay us. I could make more money from strawberries, if they were as safe; but they are not, here. There are places where they are. Within a mile is a hill of rich, mellow, moist soil on which I would not hesitate to put out strawberries largely. As it is, one does not like to work hard for nothing half the time, and we shall set out only plenty of strawberries for our own use in the future. We decided on this before the frost, knowing well the chances, and set out this year only what should bring us, say, 20 bushels in a good year. We will do our best to succeed in what we undertake; and then, if failure comes, it will be no fault of ours. Special farming is not very popular, but we will grow what nature has best fitted our farm for. We want safety and almost certainty with as little of luck and lottery as possible.

Now, this is the idea that went through my mind, friend Root, when you asked me why I did not put in many acres of strawberries. I wish I had brought it out more fully in our little strawberry-book. Being rather set up by success then, I hardly made as plain as I should this point of going against nature. But still that book was intended mostly for farmers, who raise berries only for their own use, and this I would do in any locality, however unfavorable. By setting out the varieties that stand frost best, and by heavy mulching, and, best of all, by setting out a great plenty, berries may be almost a certainty; and if not particularly profitable some years, it will not matter on a small patch.

Like yourself, friend Root, the writer must have something to work over between times. Desiring to get something less risky than berry-growing, it is a barrel of Freeman potatoes this year, which we planted by hand and cut so fine as to spread them over 1¾ acres. I am just spreading myself to see how many I can grow from that barrel.

When I get to writing you I don't know when to stop. There are many things on my mind. For one, your recent reference in GLEANINGS to corporations having souls, and to the use of fertilizers, calls to mind this incident: The great fertilizer firm of W. S. Powell & Co., of Baltimore, asked me some time since to write an article on wheat culture for them, to be published in their pamphlet, sent out as an advertisement of fertilizers. I replied that I could not conscientiously say any thing in favor of fertilizers. I know they pay sometimes; but I believe on the whole, in our locality, they have not paid our farmers. Their answer was, "We do not care a snap whether you recommend fertilizers or not. If you can give us something on wheat culture that will be a benefit to our farmer readers, we want it." It seems to me that such a reply as that from a great fertilizer firm is worthy to go on record. Some corporations have souls. In fact, I believe they usually do about as we outsiders would if placed in their position. Take the great W. P. Southworth corporation, of Cleveland, where we do our trading in the grocery line. I think they sell their goods for exactly what they are. If you want adulteration you can buy it. For example, strictly pure Arabian Mocha coffee is 35 cents a pound, or was when I was in there one day; extra Rio, strictly pure, 28; choice Rio, 86 per cent coffee and 14 per cent English chicory, 25 cents; Rio, 65 per cent coffee, 25 per cent English chicory, and 10 per cent rosted peas, 20 cents, and so on. Granulated sugar they sell in lots of 25 lbs. or over, at only ¼ of a cent a pound above wholesale barrel price. There is certainly soul in *that* corporation. These corporations and trusts do wrong sometimes, like the rest of us; but they also do lots of good by greatly reducing the cost of doing business, and hence the price to us. T. B. Terry.

Hudson, Ohio, June 4.

[Friend T., I am exceedingly glad to get this report from you. Of course, I am not glad that you have suffered this loss, but it will call the attention of strawberry-growers to this very important point. I believe our locality is much more favored than yours in the matter of freedom from frosts. Our Michel's Early were almost all killed; but, strange to say, our Haverlands, both on the hill and the low ground, were almost unharmed. Three-fourths of all our berries this year will be from the Haverlands. As our berries are still blooming, the bloom being kept back by the cool weather, we anticipate a later crop of berries than we have ever had before. The first ripe berries that we found, June 5, were Haverlands. This is a full week later than we usually begin to get ripe berries.—I, too, feel a great deal interested in what you are going to get from that barrel of potatoes. I am glad you are interested in the things in Gleanings, and now please do not stop when you feel as if you had something to say to us all.—Your suggestions in the way of more charity toward large firms and corporations, I feel are providential just now. I do not believe in letting up on fraud—not one iota; but let us not fall into the error of thinking that it is only the *moneyed* men who are wicked. In all my business experience I have met continually just such facts as the one you give. Sometimes I am called upon to give my evidence, or testimonial, for certain goods or commodities. When I suggest that my experience would not be of benefit to them, their answer is, almost invariably, "Never mind; let it come. Your testimony is the very kind we want. If there are still difficulties to be met and overcome, let us face them. Never hesitate about bringing out the truth." Now, dear friends, the above is certainly the attitude and spirit of many of our great institutions; and therefore, like the wise man mentioned in the scriptures, they desire to build on a solid foundation. I have been quite well acquainted with the firm of W. P. Southworth & Co. for 25 or 30 years; and the universal verdict seems to be that their great business has been built up year by year by absolute honesty and truthfulness in every thing they buy or sell.]

GIANT WATER-BUGS.

SOME MORE WONDERFUL THINGS FROM PROF. COOK.

Prof. A. J. Cook:—Inclosed you will find an insect of some species that lives in water, of which I should like to know the name and its character. The way I came to see it was simply this: I have a dam wherein I keep carp, and I was sitting there one day and saw this insect struggling with a carp about 3 inches long. I tried to get it, and at last succeeded in getting both the insect and carp; but the carp was dead after I got both. Then I took the bug home and kept it three days in water, alive.

Layfield, Pa., May 20. I. R. Erb.

[Prof. Cook replies:]

The large bug that is playing the part of a freebooter in Mr. I. R. Erb's carp-pond is no stranger to me. It is one of our largest American insects. Its color varies from dark to yellowish gray, and its size varies from 1¾ inches in length to 2½. The one sent by Mr. E. is a little more than 2 inches long, and ¾ of an inch broad. I have them in our collection that are over 2½ inches long, and more than one inch broad. Some visitors, a few days since, asked what the monstrous insects are that are so frequently caught under electric lights. "Why," he says, "we catch them which are as large as my hand."

I laughed, and spoke of the boy who saw a thousand dogs, which proved to be "old Bose and another dog." I showed him a case of these great water-bugs, and he said at once, "They are the fellows." These live in the water all their life, and come forth only to mate, which they do in the night. Then they are attracted by lights, and so are found, often in considerable numbers, dead under the brilliant electric lights of our cities and towns. They are as rapacious as they are big; and woe betide the fish or insect that comes within reach of their strong piercing beak. They, like all true bugs, have a strong formidable sucking-tube with which they suck the blood and life from their victims. If very numerous, they would be serious pests in a fish-pond.

Ag'l College, Mich., May 25. A. J. Cook.

[Look here, friend C. Do you mean to say that this great bug 2½ inches long, that lives in water all his life, not only comes out on dry land to mate, but that it *flies* through the *air?* How *else* could bugs of that kind be under the electric lights? I have heard of flying fish, but I did not suppose that we had any thing in that line right here in our own land. If so, there are more "books in running brooks" than I ever knew of before. I confess I should greatly like to see an insect that lives in the water, and yet comes out and flies in the air. Another thing: Is it really true that an insect 2½ inches long would undertake to eat a carp *3* inches long? or did the carp try to swallow the insect? It seems to me that you and friend Erb are telling marvelous stories, or else I am a good deal behind the times in the "bug business."]

DR. MILLER'S HOME-MADE BINDER.

AN EMPTY COMB OR DIVISION-BOARD — WHICH GIVES MORE PROTECTION?

"Now you must send a description of that to Gleanings."

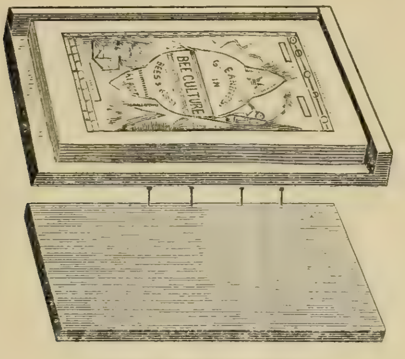
"Oh, no! enough book-binders have been described already."

"Yes; but the others are all intended for binding at the end of the year, and you know how much more convenient this is."

I was obliged to admit the point, so here comes the description. I don't know how many ways of binding I have used, some of them very satisfactory, but they all contemplated leaving the pamphlets to be bound when the volume was completed; and before that time, too, often some of the numbers were mislaid, and then there was a big time hunting up and arranging. I tried the self-binders—got one for Gleanings and one for the *American Bee Journal*. I used them less than six months, and they are for sale cheap.

The beauty of the arrangement I now use is, that each bee-journal or magazine of any kind can be bound as soon as received, with the previous numbers of the year; or you can do as I do—throw them into a drawer, and bind once a month or so. Indeed, two of the journals I get are not sewed together in any way, and one of them not even cut, in which case it is very handy to bind them before I cut the leaves, for it is about as handy to bind them as it is to hunt up a needle and thread and stitch them together.

I'll tell you how to make the binder. Of common ⅞ pine stuff, cut one piece 16 x 8, another 12 x 5, another 15⅛ x 1, and another 8 x 1. That's all the stuff. By looking at the cut you'll see how to put the pieces together. Nail the 8 x 1 piece on the end of the big board; nail the other stick on one side of the board (be sure to get it on the same side as it is in the cut), and you will thus have a kind of little box closed on two sides, and only one inch deep. Now you are to make four holes in the other board, and that's the most particular part of the job. Make these holes 5/16 of an inch from the edge, the first one 2 inches from the end, then 1¾ to the next, then 2 inches to the next, and 1¾ to the last. It is of first importance that there be no slant to these holes, so take a try-square and make a mark clear round the edge of the board, where each hole is to be—that is, on the three sides, so the mark on one side will be exactly opposite the mark on the other. Draw a line on each side, 5/16 from the edge. With a very small bit bore a hole half way through on one side, and then bore clear through on the other side, thus making sure that each hole shall come out at the right place. If you haven't a bit to suit you, you can drive a nail in at each side to make the holes. Now get a pair of long shoe-strings for each book you have to bind. Put the bee-journals on the big board, *right side up*, taking pains, as each one is laid on, to push the corner of the book close up in the angle; lay on this the smaller board, crowding its corner tight up in the angle, and through each nail-hole drive a two-inch No. 13 wire nail. Draw the nails with a claw-hammer. Push one end of a shoe-string through the hole nearest the top, making it go in from the same side the nail entered, and from the same side push through the other end of the same string. The two ends of the string can now be tied together, and another string must be put through the other two holes. From five to ten journals can be put on the board at the same time, and it doesn't matter if they are all of different kinds. The expense for shoe-strings is very little. You can get them more than three feet long for a cent or two a pair. When the year is up, tie your strings together in a hard knot, cut them off, and then you can tie the cut ends together and use them over again.



DR. MILLER'S BINDER.

HOW MUCH DIFFERENCE DOES A DIVISION-BOARD MAKE IN THE HEAT OF A HIVE?

Eight pages of the *Revue Internationale* are taken up with a report of a series of experiments made by Prof. Gaston Bonnier, of Paris. So important did this report appear in the eyes of that journal, that, on account of a misplacement of paragraphs, the whole eight pages were reprinted in a supplement the next issue.

Prof. Bonnier gives quite full details of his experiments, guarding carefully against error, in such a way that little room is left to doubt the correctness of his conclusions. He first experimented on two strong colonies placed in winter quarters after they had ceased to fly, Oct. 9. They were in 22-frame Layens hives, the colony occupying nine spaces at one end of the hive, and confined to that end by means of a partition of wire cloth. Outside of the wire cloth was placed alternately a division-board and a frame filled with empty comb. Between the wire cloth and the division-board or comb was a thermometer, and the temperature was carefully recorded as the changes were made, a record also being kept of the outside atmosphere, which gradually arose, as the day warmed up, from 30° F. on one day at 6 A. M. to 54° at 10:30. Now, how much warmer do you suppose he found the division-board than the empty comb? Why, not a whit! Then he tried alternately one comb and then five combs. He found one comb just as good as five. But error might arise from the bees generating more heat at one time than another. It might also be better to have a constant temperature outside the hive. So he substituted, for the colony of bees in the hive, a stove, and placed the stove in a room whose temperature remained steadily at 27°. Again he found no difference between the division-board and the comb. The results were a surprise to himself. He says: "I believed there existed an appreciable difference in favor of the division-board. It appears there is none." In trying to account for such unexpected results, he says that wax is a poorer conductor of heat than wood; and of all bodies, according to Tyndall's experiments, the one allowing the least radiation of heat. This stands as an offset to the advantage that the division-board has in not allowing the air to pass by at each end.

Now, here's something for Prof. Cook and Mr. Larrabee to refute or confirm. If division-boards are of no value, it is well to know it. It occurs to me that a variation might be made in this way: In a room of uniformly low temperature, place a hive with a heater kept at a uniform temperature in the *center* of the hive, a comb on one side of the heater, and a division-board on the other. Now place a thermometer, one in each end of the hive, and compare. In any case this much good may come—that, instead of the wooden division-board, we can use a frame of comb with something fastened on each end-bar to make it as tight-fitting as the wooden board. If, however, we use closed-end frames, then the problem assumes a different shape.

C. C. MILLER.

Marengo, Ill.

IS HE A JOKER?

SOME FISH-STORIES.

I bought me a colony of bees last November, with one of Alley's queens in it, and transferred them and kept them through the winter in fine condition in a Simplicity hive. It is true, I took them into the house and set them by my bed during the coldest weather; but I did not keep them there until they knew me well enough to meet me on the road and look me in the eyes, and buzz in my ears.

I have learned to write a little for GLEANINGS, but can not get any one to believe *every* thing I write. I had Bro. Root on top of the fence in regard to that wheat "mill;" but E. France has got him leaning on the other side now. You men up there in the North do not seem to have much confidence in your fellowman. I am inclined to believe *every thing* I hear. I will make one more statement and try to prove my former ones; and if I do not get some evidence on my side, then I am done.

Friend Root, do you know that our common house-martins that make their appearance every spring, when they leave in the fall and go to their winter quarters settle on a kind of rush (just like a swarm of bees on a limb), until the rush bends down and lets them sink into the water and there they stay all winter in a dormant condition? Of course, you do not believe it, as you did not readily believe the story of the little snakes running into their mother's mouth. You seem to think nothing can live any length of time in and out of the water. Now as to the evidence: 1. I will refer you with this bird tale to A. J. Cook; 2. If there are any snapping-turtles in your little creek at Medina, take one out and keep it 24 hours, and then tickle it on the nose with your finger, and report results.

A. B. Baird's bees can puncture grapes and hull wheat. Take one dozen bunches of good ripe and sound Concord grapes, and mash up half the bunches, and set them all together before your bees, and watch the result. Let the truth come, Bro. Root.

Yes, A. B. Baird's bees can bite. I bought me a Gray's covered feeder of A. I. Root, and the saw had left a stringy substance in the entrance uncut, which the bees bit out in a short time. They also bit one of my hives in the entrance until it was larger. E. France will say "mice" again. Well, friend F., if bees will suck chilled brood as dry as chips, why can they not suck a chicken as dry as a chip also?

J. D. Whittenburg.

Marshfield, Mo., May 9.

[We will not attempt to dispute your statements, because—because you are a better joker than the rest of us. Say, do those martins stay in the water dormant for ever?] E. R.

[I am well aware that bees can bite sufficiently to enlarge the entrance to their hives, as they do sometimes where they are made carelessly too small. I have also seen robbers work at a crack until they cut away wood enough so they could manage to squeeze through it; and I have been for years pretty well satisfied that bees do, at least occasionally, manage to get into certain kinds of grapes. Perhaps they push in between the skin and stem, and thus get an opening. I believe, however, this does not often happen; and it is usually confined to the sweetest varieties of grapes, such as are grown in California, together with the Delawares and some other varieties grown here.] A. I. R.

EXTRACTING-CASES.

SHALLOW EXTRACTING-FRAMES VS. THE FULL-DEPTH L. FRAME; THE BEE-ESCAPE NOT A SUCCESS.

I am free to say that I can't understand why so many large producers of extracted honey still use full-sized Langstroth supers. When I remember what time it has taken to lift out frame by frame, shake them and brush off the bees, etc., what difficulty I had when the honey-flow suddenly ceased, and robbers were troublesome, I can hardly think now of getting along with my increased number of colonies without shallow supers.

The main advantage of shallow supers is, that I take off the whole super at once, and do this nearly as quick as anybody can take out a single frame. For two men it takes hardly an hour in the morning to wheel all the supers into the honey-house. We can extract during the day, and in half an hour they are set back on the hive in the evening. With the full-story supers one man had to work all day in the apiary, and had not much time to take a rest if the other fellow at the extractor were to be kept busy. We now do all the outside work in the cool morning and evening. Surely he who still uses a full-story super has never tried a shallow one.

It seems that the idea is prevailing, that, with shallow supers, the honey must remain on the hive till the honey-flow is over. I do not do so, but extract the most of the honey during the honey-flow. I storify the supers in so far that the extracted combs are set just over the honey-board (mostly queen-excluding), and the super on top is taken off only for extracting. If we use three supers for every strong colony, we take off capped honey from top, and all the uncapped honey remains in the hive till we come along again to the same hive. All the time the bees have plenty of empty combs, and we can extract as quickly as the bees bring in the honey. All this is impossible with a two-story Langstroth hive. Here you must extract capped and uncapped, thick and thin honey, because both kinds are in the same frame, and nevertheless the bees have sometimes not empty cells enough. By the shallow-super system we have no danger from swarms, and do not have to fuss with taking out queens, etc., *a la* France.

In getting the bees out of the supers we use Heddon's plan, smoking them down. If the honey is capped we have no difficulty in doing it, and I can easily take off as many supers as the assistant can wheel into the honey-house, but if the case contains uncapped honey, or, still worse, some brood, the bees will not readily leave the super; and that is one of the reasons I want a queen-excluding honey-board. The few bees remaining in the supers will escape from the honey-house. I tried the shaking-out plan, but it made little difference in the number of bees remaining in the super.

Bee-escapes did not work with me. Sometimes the bees are very slow in leaving a super; but even if the escapes would work all right all the time, I would not use them; it is too much work for me to handle the supers so often. When I lift off a super to slip the escape under it, I can just as well set it on a wheelbarrow and save a second lifting.

You will say in your foot-note to this article, "That's old." I know it is; but what I wish to know is, why do you in your price list recommend a two-story hive for extracting? Why do you not add 5⅜-inch-high frames and corresponding cases to your Dovetailed hive? In 1889, page 190, you say, "Our dovetailed supers can be used for the half-depth bodies if desired." But you never offered frames for this purpose. By the way, I think these supers would be too shallow. I use frames 5⅜ inches high, because this size is just right for my 11-inch extractor, and the supers can be made of six-inch lumber, without waste. It is not too deep to smoke out the bees, and a shallow frame would cost more for the same comb surface. I have used these cases for five years with common hanging frames; but I think now they can be improved by using closed-end frames.

Here let me add a few words in regard to closed-end frames. The hives I got from you this winter contain swarms now, and some of my old frames I have changed to closed-end frames. As yet, I am very well pleased with the handling of these frames. If, by and by, the frames are not too much glued to the walls of the hive, this style of frame will have many advantages over the hanging or swinging frame. I confess I was prejudiced against these frames. I am experimenting now with some other frames and hives, and can't tell as yet which kind I shall prefer; but I am sure, with out-apiaries, I *must* have fixed frames.

L. STACHELHAUSEN.

Selma, Texas, May, 1891.

[Thanks for your valuable suggestions. Your ideas will dovetail very nicely with those of Mr. Heddon in regard to his shallow closed-end frames. The Dadants use half-story extracting-supers, and their frame is six inches deep.]

E. R. R.

LADIES' CONVERSAZIONE.

SEATS FOR BEE-KEEPERS.

SEATS FOR EVERYBODY WHEN TIRED OUT, OR IN A STATE OF FEEBLE HEALTH.

Mr. Root:—When you spoke of seats in the apiary and in our workrooms, you touched upon a secret of success which, if followed out by all, especially women, would make this nation a happier and much more thrifty people. A half, or, at least, a third of our women, complain they can't do their housework without great weariness; and many are obliged to hire help who otherwise would not, if they would just act upon that little hint of yours of sitting down to talk, or sitting down to do such work as could be as easily done sitting down as in standing up, and then we could keep rested. No one should keep on his feet until trembling and tired, but keep within his strength, and then his strength would increase; but if worked to exhaustion, it sooner or later brings on weakness and disease. If sitting down does not give complete rest, then lie down each day, more or less. We make better wives and mothers if not overworked. The mind is much clearer, and the nerves steadier; the sharp answer is not half so apt to be spoken, and we speak louder, so we do not so often have to be asked over what we say; and if asked over, we are not so apt to give an impatient sound to our voices, but more gentle and sweet. If mothers and wives can keep sweet-tempered, it tells upon the whole household; for children are very apt to act and speak as mother acts, and husband to answer back as spoken to, and the help to be cross and disobliging. Even the little infant is sometimes thought to be cross and fretful, when it is the mother who is much to blame, for mother is too tired. Oh if we could realize each day that it is not all of life to live—that each day we are building for eternity, and our building is the lives with whom we come in contact, how much more careful would we be to be right, as it is more what we are than what we do that tells for God! We must have Jesus in our lives as the ruling principle.

PLANT HONEY-BEARING TREES.

Some 12 or 15 years ago Mr. Axtell and myself thought strongly of planting out a basswood grove for our bees; but one day, while reading in a bee-journal, one writer said it would not pay the person who put out such a grove, as he would never live to see his bees gather honey from the grove he would set out. The consequence was, we dropped the idea and did not set them out, as it was not so convenient to obtain such trees. We now wish we had such a grove, and I think it would pay us, though basswood-blossoms are seldom rich with honey in this locality; but we might as well set out honey-bearing trees as those that produce no honey, as some years they might yield honey, if other years they did not. Our advice would be, to plant honey-producing trees.

GLOVES.

Bees sting my hands worse with cotton gloves than if bare-handed. The soft springy nature of a cotton glove always seemed to me to anger them; and old kids that have been worn for some time, I think have a smell the bees do not like, and they sting worse with than without them. Once, a good many years ago, I got tired of the stings, and thought to try buckskin gloves; but so many bees left their stings in the gloves, I pitied the bees as it killed so many. I pulled the gloves off, and have never worn buckskin since. I never use any covering to my hands unless it be a cotton cloth wrapped low down over my wrist, down over the backs of the hands, as far as possible, and of a thickness that the stings can't reach through. The stings which the bees thrust in as they try to crawl under such a cloth are always the worst to be borne, as we can't pull them out so quickly.

MRS. L. C. AXTELL.

Roseville, Ill., May 15.

[My good friend Mrs. A., it almost startles me sometimes to see how exactly your experience coincides with my own, and to find that you have passed through the same sort of trials that I have. It is not only better "wives and mothers" when they are not overworked, but I am inclined to think that fathers might be improved quite a little, if they would take the trouble to sit down when exhausted, so as to recuperate their strength. There is a whole sermon, and a practical one, in your remarks about taking care of our bodily health and strength, so that we are better prepared to exercise the virtue of patience. But there is another side to this matter of seats, and one that I rather dislike to speak of, but perhaps it might be well to recognize it here. We sometimes meet with lazy people who insist on sitting down and shirking responsibility when they are *not* tired. Providing seats for such would be only ministering to their laziness. A little careful observation, however, with Christian love in our hearts, will readily enable us to judge pretty accurately. I become thoroughly tired out almost every day; but somehow I have the faculty of resting quickly. Sometimes sitting down for only five minutes, and occupying myself with some work that can be done in a sitting position, rests me so that I am ready to climb stairs again, and hurry from one room to another, and enjoy it too. Now, then, let us all remember that we can do Christ's work by furnishing or suggesting, or *providing* seats for those we love, and we *ought* to love everybody around us.]

A. I. R.

THE BEES AT DR. MILLER'S.

AN INTERESTING REPORT.

Our bees are in splendid condition, and nearly all our colonies are ready for the harvest, which we expect to begin in about a week, there being some clover in bloom now, May 26. Only one colony in the Wilson apiary of 92 colonies has less than five frames of brood, and most of them have from 6 to 8 frames.

I want to tell you a little about how we have strengthened them. Some of our colonies were very strong early in the season; in fact, they were all in good condition, no sign of spring dwindling. When the queen was crowded for room to lay in these strong colonies (they usually had from 6 to 8 frames of brood before she was crowded much), we went to each of them, first found the queen, placed the frame with her on in an empty hive, then took one or two frames of brood with adhering bees, generally taking only one frame, unless very much crowded, giving them empty combs in place of those taken, returned the frame with the queen, when they were all right for about a week, when we had to take from them again.

When colonies have only two or three frames of brood they build up very slowly, often seeming to stand perfectly still. When they have only a little patch of brood in one or two frames, as a general rule they may as well be broken up, for they do not pay for the time you spend on them. It took me a good while to learn this; and how I used to beg that they might be turned over to me! Now I experience quite a feeling of relief when they are disposed of. Mrs. Harrison expressed my sentiments exactly when she found that the bees of her weakling had "betaken themselves to pastures new."

The best colonies to build up are those having five frames of brood; but the trouble is, you will be obliged to take from them so soon that it makes a great deal of work; and if left entirely alone they will be all right in time for the harvest. We wished to avoid all extra work, so we decided to begin with those having brood in three frames. Going to the first colony that had only three brood, we removed all the combs until we came to the brood, and gave it four frames of brood with adhering bees. After we had strengthened all the colonies that had only three brood, we filled up those having only four.

We have never experienced any difficulty in uniting bees in the way I have mentioned, and in no case has the queen been harmed by it. We have always taken the precaution, however, never to put two frames, taken from the same hive, together. If they were put in the same hive, we always placed a frame taken from another colony between them. Sometimes, if it was diffcult to find the queen, the frame of brood was taken without the adhering bees, in which case it was given to a colony having four or five brood, so that it should be well cared for.

Mrs. Harrison, I should like to know in what condition your combs are when you want to use them, that you set in your cellar to wait for that swarm. I very much fear that, if they were left in our cellar until swarming time, we should find them pretty well riddled with worms, besides being somewhat musty. I wonder whether the difference is in the cellars, or does swarming time come earlier at Peoria?

Just as soon as we can, after our bees are out of the cellar, we see that our extra combs are all given to the bees to take care of. An extra story is filled with these combs, and placed under one of the strongest colonies. The bees clean them up nicely, and they are soft and sweet when we want to use them.

Marengo, Ill. EMMA WILSON.

[My good friend Emma, I have been through the same kind of experience; and after having practiced it two or three years, it became quite questionable to me whether robbing Peter to pay Paul was just the thing or not. There is one thing certain, however: We can, by this means, often save valuable queens that would surely be lost otherwise; and we think it always pays us, without question, to watch carefully, that neither our imported queens nor our select tested are suffered to die. Years ago somebody suggested that the queens that let their colonies down to a teacupful did not amount to much any way. But I know this is not true; for queens rescued from these little remnants often prove to be equal to any in the apiary.]

THE USES OF AN UMBRELLA AMONG THE BEES.

HOW TO HIVE A SWARM WITH IT.

Mrs. Harrison's umbrella on a staff is a good thing to use if it is not too windy; but an umbrella to catch up and carry around with me whenever my hands are at liberty, is one of my greatest comforts. On extremely hot days we always have them handy, and I often make use of them in swarming time to hive bees. Our queens are all clipped, but the swarms will sometimes cluster; and although I know they will return in time, I don't wait long, but take a few from the cluster and start them in. As our trees are mostly small, they can usually be reached from the ground, or with a step-ladder. I often turn my umbrella upside down, and shake part of the cluster in it, and take them to the hive where the queen is.

One day last summer a swarm came out just as a shower was coming up; and instead of returning to find their queen they clustered closely on a small apple-tree. The rain came immediately; it was cool, and the bees were being washed off on the ground. I thought they should go home, but they could not fly. They had no umbrella, so I loaned them mine. I shook them into it, and, taking it to the hive, I poured out what I could, and turned the umbrella down on the hive and left them to go in at their leisure, which they did, and I presume were much obliged, for they made no more trouble, and were one of my best colonies that season.

THE RECORD-BOOK A GREAT CONVENIENCE.

Another great help is the record-book. It saves much opening of hives, and from it much of the work can be planned in the house. I aim to know, as nearly as possible, the exact condition of each colony during the working season. I shall be glad to have suggestions for simplifying this record, especially in numbering, as I start out this season with a new book, and a new hundred in numbers. I have been in the habit of giving the new number to the prime swarm; but as the old hive is moved to a new location, it changes the number of location and queen. Now, it seems to me the old hive, with its young bees, young queen, and new location, should be the new colony. To be sure, you would have to change the number on the old hive; but that should never be affixed permanently, as we are apt to change them about for one reason or another, and that would be easier than to remember that this stand and queen used to be No. 40 and now is No. 80. How do you do it, any way? S. M. STOW.

South Evanston, Ill., May 27.

[Dr. Miller or Miss Wilson can doubtless tell a good deal about record-books. Dr. M. has a peculiar system, and a code of shorthand of his own. He explained the whole to me while at Marengo last fall. Perhaps he or his assistant will tell us about it. Say (Mrs.) S.—excuse me if I put you in the wrong department—you have originated a new and useful function for the umbrella. Why don't you patent it—not the umbrella but the function? Joking aside, the umbrella might answer excellently for catching a cluster of bees just shaken off a limb.] E. R.

TO MAKE HONEY CANDY.

J. B. Weber wishes to make honey candy. If put into dishes which have contained candied honey the process will be hastened.

HATS, GLOVES, AND VEILS.

For gloves I like a stocking-leg with thumb and hand covered with denim. The fingers are free, the hands do not tan, and the bees can not sting through them. They do not offer to sting the ends of the fingers.

To make the hat-brim broader without the inconvenience of a broad straw brim, take straw-colored paper and cut it in strips about two inches wide. Plait, and baste around the brim. I could hardly do without it. Three-quarters of a yard of mosquito-netting, with brussels net for the face, a rubber at the top to fit the hat-crown, and a string at the bottom to fasten about the neck, makes a good and cheap veil.

SEALING HONEY.

Why do not my bees seal honey promptly? They were gathering honey, though slowly. They were strong enough to swarm. We examined honey again and again, each time deciding that it must be left a little longer to complete the sealing. At last it was browned.

GARDENING.

I am very glad that the ladies have a department in GLEANINGS. I very much wish that they would respond to Mr. Root's request that they tell us how they enjoy stirring the mellow soil, and watching the plants grow. I find the soil heavy and hard to work. If I would see the plants grow, I must wage an unceasing war against weeds, insects, droughts, and frost. We had quite a hard freeze last night, and have been hard at work to-night covering plants with straw and paper. We think Paris green the best remedy for the striped cucumber-bug. Last year our first tomatoes brought eight cents a pound. I should like to know whether any of the ladies can dress so as to do real work in the garden, and yet be presentable when callers arrive.

You mention a book on tomatoes as being the only one. I will send you a copy of one written by F. F. Smith, then of Aurora. He is now raising roses. His greenhouses are at the corner of 67th St. and R. I. R. R., Chicago, near the Cook Co. Normal. I think this book a good one. My favorite tomatoes are Ignotum for early, and Livingston's beauty. LIBBIE WILLIAMS.

Delavan, Wis., May 26.

[Yes, my good friend, it is emphatically true in gardening, that "there is no excellence without great labor." This matter of dress for gardeners, both men and women, is one that interests me. When I get right down to business with the plants, not only my boots but my clothing generally looks quite unpresentable. People will come along and ask me all sorts of questions about A. I. Root. Sometimes they venture the remark that he must be a queer sort of genius, until I begin to think I can not longer conscientiously avoid telling them that I am the very chap himself. I am exceedingly obliged to you for the tomato-book, for it plainly indicates that friend Smith is a real live gardener, and loves to make things grow.]

A COUNTRY COUSIN'S EXPERIENCE.

Will the ladies kindly allow a "country cousin" to enter their Conversazione? I, also, have felt "lonesome and disappointed" when GLEANINGS arrived without a "piece" from the pen of my favorites—Mrs. Harrison and Mrs. Axtell. I have kept Italian bees with moderate success, ten years. I never wear any thing on my hands while working with bees, and get but few stings during a season. I must have free use of my hands and fingers. I remove propolis with hot water, soap, and ammonia. I cover tan with gloves or mits when I go to church, Sunday-school, etc. I wear a light-colored calico dress, gingham apron and sunbonnet, all well starched and smoothly ironed. My oversleeves are fastened above the elbow, and drawn closely around the wrist. I seldom have to hive a swarm, as I try to keep all my queens clipped. I could not sit down, nor get down on my knees, and handle frames with bees, on account of rheumatism, of which the stings have not entirely cured me; therefore I have my hives stand on benches twenty inches high, under the shade of very large apple-trees. I enjoy standing erect while at work. When very tired I go into the house and lie down. MRS. MARY HUNTER.

Vicksburg, Mich., May 10.

MAY 15TH GLEANINGS; ONE OF THOSE LARGE BEE-APRONS.

I received the May 15th GLEANINGS last evening, and I could not close my eyes until eleven o'clock, as it was so interesting. We generally get our mail in the evening; and you may be sure that, when GLEANINGS comes, it is a late hour when our eyes are closed.

I am going to try my hand at bee-work this season. We have moved our apiary of over 100 colonies into the heavy basswood; and if good care and strong colonies is all that is needed this year I think we shall get a good crop of honey. I notice the bee-keeping friends are expecting a favorable season.

APRONS.

I have some of those large aprons, such as Miss Wilson speaks of, but mine are made of heavy shirting. I think I shall like the material better than any thing spoken of in GLEANINGS, as they look nicer, and are much easier laundried. Speaking of washing reminds me that perhaps all ladies who do their own washing may not know the benefit of using kerosene. If a tablespoonful is put into the suds they are to be soaked in or rubbed through, the ease with which the dirt comes out is surprising.

I have not selected my gloves yet, and am still at a loss to know what kind to get, although I have watched GLEANINGS closely on that subject.

I make our own foundation. Last year was my first experience in that line or in any work concerning the apiary. I did not undertake to do any thing in regard to handling the bees, but I am going to make their acquaintance next week, and show my husband what help I can be in the yard. I know he will appreciate it, as he has kept bees so long without a wife's help. MRS. F. T. HALL.

Prairie Farm, Wis., May 21.

GIVE, AND IT SHALL BE GIVEN UNTO YOU.

Friend Root:—The text, "Give and it shall be given unto you," and your writings have called forth this note. I think, and know by experience, that the more we give the more we shall receive. Nearly two years ago I was left alone, with the responsibility of making our living from 35 acres, and rearing up two children for God. Of all we sell, we lay by a tenth for benevolent purposes, and have enough more to use ourselves than if we gave nothing to the cause of Christ. I work and plan as much as the next woman, doing all our work that we may have means to give. I have 12 colonies of bees, and keep bee-supplies, make foundation, milk two cows, keep sheep, pigs, etc., and our heavenly Father has blessed all our undertakings. Now, dear sisters in the ladies' department, let us be liberal, and give to the cause of Christ as well as to spend for our own good. Mrs. Eva Hole.

Ripleyville, O., May 20.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PROSPECTS NEVER BETTER THAN NOW; HOW THE ITALIANS CAME OUT AHEAD IN THE RACE.

The prospects for a honey crop were never better than now. The season has been a little backward, with considerable chilly weather. We had no pollen until April 6, and our colonies were very weak—mere nuclei. I lost 20 from starvation. We had no swarms last year. The Italians fared much better than the blacks, and nearly every one of those which perished were blacks and hybrids.

GLEANINGS OF 8 YEARS AGO AND GLEANINGS OF TO-DAY.

While looking to-day at a section I bought of you eight years ago, I took it out of a wide frame. I thought to myself, "What a change!" for it looked rough and dark compared with what you make now. And while looking at Gleanings to-day I see your subscription list is about three times as large as when I first subscribed, or more, and still increasing. When Ernest got married you stated that you had a "*swarm* in winter." I had a notion right then to ask you if you had given it foundation. I see you did, for Ernest keeps right with the bee-business, and I think a good bee-man is awake to every invention. I am pleased that you are so mindful as to illustrate those things, for the most illiterate can read pictures. I would say, that the prospects for fruit, hay, and cereals, are excellent. E. B. Morgan.

Lucas, Ia., May 27.

HATCHING OUT QUEEN-CELLS IN THE POCKET.

It is doubtless no novelty to you, but it may possibly be interesting to some of the readers of Gleanings, that I succeeded in hatching several fine Italian queens by cutting out the cells and keeping them in a small box in my pocket. The cells were, of course, capped over before I took them out. I do not know any thing about handling bees, excepting what I learn from your A B C, and the little experience of this spring; but I am trying to save my Italian queens, and know of no other way practicable for me. H. G. Otis.

Clifton, Va., June 1.

[Friend O., the same thing has been done before, and is described in our back volumes. A shallow tin box—a tobacco-box for instance—seems to be what is needed. Put in a little soft cotton, to keep the cell or cells from tumbling about. Then put the box in your inside vest pocket, keeping it so close to your body that it will remain just about the temperature of your body. Such a queen-nursery will do very well. It is always at hand for examination; and when you find a hive that needs a queen, the queen is right with you without running after her. I am inclined to think the idea ought to be in use more than it is.]

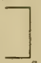
AN APIARY FROM A SMALL BEGINNING.

Four years since, in July, I bought of you a queen and one pound of bees. They lived nicely through the following winter. The next year they grew strong, but did not swarm. The second year they cast one good swarm. Last year, while located at Fredonia, Kan., the two colonies both swarmed in April. In the following months both the original colonies and their April swarms cast swarms, so that, in the fall, I had nine colonies of beautiful Italian bees, all from the one queen and one pound of bees. Last year I sold nearly $50.00 worth of bees and honey, and retained two colonies with which to begin business here in a new home. My two colonies seem to be rapidly increasing, but have not yet cast a swarm. I fear this locality is not favorable to bee culture. N. V. Moore.

Yates Center, Kan., May 25.

A NEAT WIRE STAPLE INSTEAD OF A HEAVY STONE TO HOLD THE COVER DOWN.

For some years I have used heavy stones to hold my covers down to keep the winds from blowing them off until I got sick of that. I now use a wire bent as shown, the width being $\frac{3}{4}$ in., and the length $1\frac{1}{2}$ in. But the length may be varied. Take an awl and bore a hole a little slanting from the bottom. Then stick in the wire on each side of the hive. They work all right, and do away with lifting a stone every time I want to examine a hive.



Ben. Franklin.

Franklinton, N. Y., May 22.

[Very good, friend F.; but isn't it a big nuisance to be pulling those staples out and putting them back in again? The first Simplicity hives were hinged, and a little hook fastened to the cover like a box or chest.]

HAS TO STOP BEE-KEEPING BECAUSE BEES DESTROY FRUIT.

I have been thinking I must stop Gleanings because I can't keep bees here, they destroy so much fruit. I kept one stand over. They have swarmed five times, and are now all bringing in honey from the sage. But before the ripening of fruit I have to kill them. They are my pets, and I hate to kill them. I will inclose a dollar for Gleanings. I must have it a little longer.

TANGLE-FOOT CLOVER.

I inclose a slip of what they call "tangle-foot clover." It is in blossom five or six months, and the bees work on it from morning till night. The mountains in this part of the country are covered with it. If you ever come to California again while I live, I want to see you. When you were at El Cajon you were only ten miles from me. I am now 73 years old, and preach twice every Sunday. A. Bixby.

Dehesa, Cal., May 1.

SITTING DOWN TO WORK THE HUBBARD SECTION-PRESS.

I note what you say about having to stand up to work my section-press. Please set the machine on the floor, and, after arranging a seat the right height, sit down and go to work, and see how you like it. I fully appreciate the complimentary notices you have given the press. G. K. Hubbard.

Fort Wayne, Ind., May 20.

LOOFT'S HOME-MADE SECTION-FORMER; AN EXCELLENT MACHINE.

I want to bear my testimony to the excellence of the section-press described in Gleanings, May 15, invented by C. G. Looft. I made one, and it is a daisy. I think it amply pays me for one year's subscription to Gleanings.

Fulton, Mo., May 27. H. S. Huggett.

WHY THOSE CAKES FROM JAPANESE BUCKWHEAT TASTED BITTER.

I think I can explain how the buckwheat cakes spoken of by friend Hann tasted bitter, for I had a similar experience. The bitter taste comes from the bran that is left in the flour if the buckwheat was not *perfectly dry* when ground. That taste will be more pronounced if the cakes are kept a little too long on the griddles. When I had my buckwheat ground last fall it was a little damp, and lots of the flour went with the bran. We tried the shorts, or middlings, for cakes; and, while the *flour* was all right, the cakes made with the shorts had that bitter taste. The great trouble with the Japanese is the size of the grain, which is too large for most mills. I. H. Putnam, of River Falls, Wis., who owns a mill, told me that, when grinding Japanese buckwheat, he put up a spout to bring back the grain that was carried over and would have been lost, and so got a better yield than with the common kind.

GUSTAVE GROSS.

Hillsborough, Wis., May 22.

SPRAYING TREES; TWO HORSES KILLED BY EATING THE GRASS UNDER THE TREES.

For the benefit of others I thought I would report the fact of a neighbor losing two valuable horses by their eating grass a short time in an orchard where there had been spraying done.

Nokomis, Ill., May 23. E. S. SANDFORD.

[We sent the above to Prof. Cook, who replies:]

If this be true, the Paris green was used altogether too strong, or else, more likely, was spilled. It should never be used stronger than 1 lb. to 200 gallons of water. Then it may be used very thoroughly, and still will do no harm. I experimented very thoroughly two years ago, and proved positively that there was no danger. I am willing to turn my horse into any orchard, if properly and cautiously sprayed. Of course, we can never be too cautious in using such virulent poisons. I sprayed trees with a mixture twice as strong as should be used, then penned hungry sheep under some which I sprayed thrice; cut grass very close, and fed it to my horse, and this grass was all eaten in a few minutes. This I did twice, and I had thick papers under two trees, which caught all the poison. This was analyzed, and a poisonous dose was not found in all that fell. Thus it will be seen that I have reason for my faith. So I say again, if this report be true, the cause lay in improper spraying or terrible carelessness.

A. J. COOK.

Agricultural College, Mich., May 29.

THE USE OF THE WORD "FRIEND," ETC.

I think those who have been born and reared in the "Great West" will not object to being called "friend."

MY POTATOES.

One day while preparing dinner I cut off the ends of potatoes containing long sprouts. I removed all but one, and then planted them in a large flower-pot, which I had previously half filled with fresh horse manure, beaten down and covered with rich earth. I took them into the honey-house during cool nights. They remained only a few days in the pot, as my husband disliked to see me carrying them around, and I set them out in the garden. But, how they have grown, being far ahead of others planted in the open ground about the same time! MRS. L. HARRISON.

Peoria, Ill., May 11.

I *have* noticed, Mrs. H., that there has been considerable discussion in regard to the word "friend." Now, why not let each one act according to his own pleasure and feelings? I like to address my neighbors as "friends" in the way I have been accustomed to do; and I suppose there is a general agreement so far. When it comes to an enemy, however, or somebody with whom you have had disagreement, is it consistent or wise to address such a one as friend? I presume I got into the way of so doing in trying to obey the injunction of the Scriptures, "Love ye your enemies." It is no easy task, I tell you, for me to *love* everybody; but when I have fought down rebellious feelings so that I have a real honest desire to love those who are unlovable, then I feel happy in telling them what I feel in my heart. When I say "friend" so and so I do not by any means mean to convey the idea that *they* feel friendly toward *me*, but only that *I* feel friendly toward *them*, and feel an anxiety to do them friendly service. For instance, if some one is using tobacco in a way that is very offensive and disagreeable to me, I shall make very much better headway in inducing him to stop for the time being by addressing him as *friend*, and at the same time having a friendly feeling in my heart. I feel sure there is no hypocrisy about it; for when I absolutely can *not* feel friendly toward a person, I do not use the term; therefore it becomes an outward evidence to those about me that I have conquered wrong feelings toward them; and the word "friend" often helps me to accomplish difficult things, in the same way a good long stout crowbar helps us to move obstacles that we could not possibly stir without its use.—In regard to the potatoes, you have got the idea exactly, of getting early ones for the early market.—Here is something more in regard to the very matter of which we have been speaking:] A. I. R.

"FRIEND" OR "SIR"—WHICH?

Friend Root:—The question has come up in the *American Bee Journal*, p. 600, as to whom we should address as "friend." This question has puzzled me considerably, and I should like your views on it. There are editors and writers of bee-journals whom I am not personally acquainted with, but I have very friendly feelings for them, and should like to address them as "friends." I am not personally acquainted with W. Z. Hutchinson or A. I. Root; but I always address them as "friend," and they reciprocate.

There is another class of editors and writers whom I have no desire to address in this familiar way. Their writings show that, if you should meet them personally, they would be distant and reserved, at least on first acquaintance. Some of our religious and agricultural journals address their subscribers as "dear friend," and it does not seem out of place to me.

W. P. ASPINWALL.

Harrison, Minn., May 10.

MORE HEALTH PAMPHLETS.

Please let me have some more of your health pamphlets, as Dr. Hall is flooding this part of the country with his mysterious pledge and circulars, and I am afraid he gets many a hard-earned dollar from poor people here.

Mound City, Ill., May 13. M. R. KUEHNE.

I am using the Wilford Hall treatment, and have gained 15 lbs. since using it. I find the best results by daily use. Dr. Hall has done the human family more good than any other living man, in my opinion. Long may he live to enjoy the fruits of his experience and labor.

Nevada, O., May 19. B. F. SMITH.

THOSE STINGLESS BEES.

Why don't you tell the readers of Gleanings how you are succeeding with your stingless bees? **Bernard Reismeyer.**

Henry, Ill., May 19.

[They all died within a month or six weeks after we received them, even during the hot weather. Our climate didn't seem to agree with them. They had plenty of stores too.]

NOT BEES, BUT BOT-FLIES THAT EAT FROM THE SORES OF A HORSE.

I would suggest that the bees(?) the gentleman saw eating sores on a horse were the bot-fly, which resemble bees a little. A neighbor complained to me last summer that my bees were bothering his horse in the stable. I found a few bot-flies, but no bees. I think filthy habits laid to the bees are caused by these insects and ignorant observers.

Harry L. Dwight.

Friendship, N. Y., June 6.

CATTLE HAIR FOR WINTER PACKING.

Last winter we packed two hives with cattle hair, and promised to let you hear how they wintered. They are in fine condition. I have put sections on, and they are working on them some. We are well pleased with our experiment, and have packed fifteen new chaff hives with hair. I should like to find some cheap hair felt to line a few of our Simplicity hives all around inside the lower story. I would reduce them to eight frames. I think we could line extra bodies, and transfer bees without much trouble.

Please don't think we have an ax to grind, or that we are trying to sell hair. What we do want is a good winter packing that can be removed in the spring. Perhaps hair felt will prove just the thing. **Merriam & Brodie,**
Tanners and Curriers.

Warsaw, N. Y., May 2.

ON THE TRACK.

"Myself and My Neighbors" in May 1st Gleanings interested me very much, as the village of Elmore is only four miles from here. Mr. Eli Eoff is still living there. He is, very likely, a son of the Mr. Eoff you mention. It may interest you to hear that Elmore is sometimes called the "City of Churches," as there are eight there. I have, however, heard another name suggested for it, that would seem to indicate that, in spite of its churches, the 7th commandment is not observed as it should be.

Woodville, O., June 4. **Jno. F. Nieman.**

[Thank you, friend N. It will afford me great pleasure to mail a copy of the above journal to Mr. Eoff. And, by the way, your town of Woodville is about half way between Elmore and a little place called Pemberville. Thirty-three years ago I omitted to pay the sum of 50 cents to a young man of nearly my own age, by the name of Byron Pember. I think his grandfather gave the town of Pemberville its name. If anybody can tell me where to find Byron Pember, or any of his people or relatives, I shall be very glad indeed to pay him back that 50 cents, with compound interest. I do not say this because I wish to boast of my goodness, but because I believe it would be a grand thing for all of us to start a little wave in the way of paying off old and just debts. If it should take something of a boom, like the new water cure, what a grand thing it would be! I am exceedingly glad to hear that Elmore has so many churches. In fact, there is seldom a lack of churches almost anywhere in our land, if we only look about us and *hunt them up*.] A. I. R.

NEW HONEY, AND THE BEST HONEY-FLOW IN YEARS.

My bees are doing fairly well—just commenced swarming. It is the best honey-flow that we have had for several years. My hives are crowded with bees and honey. I have some very nice white honey ready to market.

Cherry, Ky., May 23. **J. C. Hicks.**

Bees did well through fruit-bloom. The drouth is broken now, and bee-keepers are hopeful. I don't think I ever saw such a prospect for white clover. It has just commenced to bloom. Some bees have swarmed. The bees here are mostly blacks; some have Italians, others hybrids. **S. W. Berry.**

Guilford, O., May 25.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 187. *Some years my bees store no surplus after clover, and some years they store slowly for some time after. Would you advise me to keep on sections ready for any late flow if there is any, or would you take off all sections at close of clover harvest and then extract if the brood-combs become crowded?*

Take off the sections and extract.

New York. C. **G. M. Doolittle.**

Probably the latter method would be best.

New York. C. **P. H. Elwood.**

I prefer to take off all sections, and extract the late slow crop.

Louisiana. E. C. **P. L. Viallon.**

I would remove the sections and extract the surplus they might make.

California. S. **R. Wilkin.**

I generally keep on sections, so if a flow of honey occurs the bees are ready to take advantage of it.

Illinois. N. W. C. **Mrs. L. Harrison.**

Your latter suggestion is correct, because fall honey is generally dark; and dark comb honey is of poor sale.

Ohio. S. W. **C. F. Muth.**

I would take off all sections at the close of the clover, and extract after, if there is honey to spare.

Wisconsin. S. W. **E. France.**

You ought to be your own judge in the matter, and be directed by past experience.

Illinois. N. W. **Dadant & Son.**

If I had just a few bees I would do the first way; but if many, the latter; still, it's pretty hard to tell.

Illinois. N. **C. C. Miller.**

Take the sections off at the close of the *white-honey* harvest. Save your late stores in the combs until spring to build up with.

Ohio. N. W. **H. R. Boardman.**

I would remove all sections at the close of clover bloom, and then watch proceedings; and, if necessary, I would put them on again if I wanted the late honey in sections.

Vermont. N. W. **A. E. Manum.**

I am not an expert at comb-honey production; but I would say, keep on the sections, as I don't

fancy extracting and daubing around with the brood-nest, especially late in the season.
Wisconsin. S. W. S. I. FREEBORN.

Take off your sections and sort them over. Put those nearest finished on your best colonies, and extract from the rest. It does not pay to produce comb honey when honey is coming in very slowly.
Illinois. N. C. J. A. GREEN.

If, on an average, the after-harvest is quite light, I think it would doubtless be wise to remove sections and extract. If the harvest is good it is easily discerned, and you can then put section-cases on.
Michigan. C. A. J. COOK.

The answer to this would depend entirely upon your market. Of late years, colored comb honey has been selling near enough to the price of the white so that I do not think it would pay to change from the production of comb to extracted honey in the same season.
Michigan. S. W. JAMES HEDDON.

That depends upon what the fall flow is from, and what your market demands. If the late flow is dark honey, and your market demands light comb honey, I believe it would be better to extract the late flow, but, be careful and not overdo the matter.
Ohio. N. W. A. B. MASON.

I leave my sections on till quite late. If removed to your location I should do the same until experience taught me better. Somehow I don't take much stock in the plan of getting a crop of extracted honey after a crop of comb honey. May be it's all right, though.
Ohio. N. W. E. E. HASTY.

I am pleased with the Rhode Island plan—secure the first run of honey in sections, then put on extracting-supers. You thus avoid the trouble of having a quantity of half-drawn and half-filled sections.
New York. E. RAMBLER.

[It seems to me, friends, that the answer to this question must depend on so many conditions that it is hard to get at an agreement. In some localities the dark buckwheat honey follows close after the light-colored clover and linden ; and it surely does not pay to have both kinds in the same section—that is, if we can avoid it; therefore not only the locality, but the seasons, and the peculiar circumstances governing the matter in many ways, should all be considered.]

A COMPLAINT.

WHAT ARE THE RULES GOVERNING QUEEN-BREEDERS?

Mr. Root:—One of your correspondents wishes for a column devoted to "growlers" in your valuable journal. I don't think I should like to be a regular contributor to that department; but if I always felt as I do now, I should want some place to vent my feelings. During the first week in May I sent for a queen to one of your advertisers, untested, to be delivered about the 20th of the month. I received word, stating the queen would be shipped *about* the 20th, or a few days later. It is a three-mile trip for me to go to the postoffice and back. I have been eight times, 24 miles in all, on foot, besides losing considerable time, and it is now the 2d of June. As yet I have received no queen, nor heard any thing further from the firm. I presume the firm is reliable, and that I shall get a queen some time between now and next Christmas, although I paid a May price for it, and really needed it before the 25th of the month. I think I have been treated unfairly. What I should like to know is this: What are the general rules of breeders in shipping queens? Are May queens that are untested, shipped in June? If a dealer can not furnish a queen on time, should he notify the customer or not?
Easton, Wis., June 2. EUGENE HALSTEAD.

[Friend H., I am glad you brought this matter up. This is one of the great troubles in advertising, and selling and buying perishable commodities. Where one lives right next door to the railroad station and express office, as we do, it is not so bad; but where it takes a trip of several miles to get to each mail or express train, then there is trouble. I have just been overhauling our clerks, and I do not know but they thought me needlessly vehement by insisting that a postal card go to every customer on every train that carries his express shipments. These postals are to avoid needless trips, so far as may be. When a customer receives notice that his goods *have been shipped*, then he can take a trip to the express office, and not before. Now in regard to mailing queens: A good many are advertising untested queens at 75 cts. each, and some for even less than that. How is it that we succeed in doing a large trade at a great deal higher prices? Why, simply because our customers learn, sooner or later, that, if they order a queen of us, and pay our price, the queen goes back to them as quick as their card reached us; for, in fact, most of the time untested queens are stacked up on our table, ready for shipment. Last night the queen clerk went home a little earlier than usual; and after the last train of the day had left, I found the book-keepers had a letter in their hands, ordering four queens. They had so much to do they did not get time to look the matter up, and therefore these queens were one train later than they might have been. Was this a small matter? Well, even if it was, there was quite an overhauling among the clerks; and the one who opens the mail was instructed to give the queen clerk notice of all orders for queens whenever letters were so numerous that they could not all be opened until only a short time before the train leaves. The queen clerk was also directed to ascertain, before leaving the office, that no queen orders were on hand unfilled. Why, we very often open a letter ordering goods by mail, at half-past four, and get the goods on the train as it passes our office at ten minutes after five. Now, this sounds a good deal like an advertisement of our business. In one sense it is; but my motive in explaining it to you as I have above, is, that you may copy our methods, so far as you can, and thus not only hold your customers, but get even better prices for your goods than you now do. You will do much more business by asking a dollar for your queens, and getting them off by return mail, than to advertise them for 50 cts., and use your patrons as friend H. tells about. Perhaps it will help matters a little to have the name of our advertiser given in our next issue, who made a customer go 24 miles on foot for his queen, and did not get her, even then. If he has any explanation to make for such slackness in business, let him make the apology himself. In case he could not mail the queen at the time agreed upon, he certainly could have sent a postal card, to save our friend all this trouble; and if it were myself, I should tell friend H. to make out his bill for the 24 miles of travel, and I would pay it. In fact, that is just the way our business has been built up.]

OUR HOMES.

Judgment will I also lay to the line, and righteousness to the plummet; and the hail shall sweep away the refuge of lies, and the water shall overflow the hidingplace.—ISAIAH 28:17.

In our gardening operations—in fact, in our general work throughout our grounds—there is such a constant need of a string or a line that I keep balls of string scattered all over the premises. When somebody wants to pick them up I say, "No, no! let it be right where it is. We want a line so often that we can not afford to run to the tool-house every time one is wanted." A whole ball of hemp string costs only three cents; and it is cheaper to have them around in different places than to run after them. When we first commenced gardening I bought an expensive line, with cast-iron reel and stake. This was very handy, it is true; but it took so much time to go after it that I got into the way of using just a simple string. Where they were left out in the rain and sun, these strings became rotten after a time, as a matter of course. But a *rotten* string will do excellent service if you do not pull it too hard. A man will be cutting a ditch, for instance; and as it is only a little way—may be by the side of the roadway—he thinks he can do it well enough by his eye. The consequence is an ungainly and awkward piece of crookedness that pains me every time I see it. Now, even a rotten string would have saved this. It is just as easy to dig in a straight line as in a crooked one. In fact, it is easier and shorter. But it seems hard for the average man to learn this. In our lessons in geometry one of the axioms was, that a straight line is the shortest distance between two points. Oh how I wish people could believe this! They believe it in the *abstract;* but when it comes to practical work, how we are pained constantly by crookedness and awkwardness—yes, when it would have been much easier to go straight! I have sometimes remonstrated at the crooked work. Then the man takes his spade and tries to straighten the ditch. Very likely he makes it worse. Then he suggests, "Oh! you want me to take it off a little here, do you?" Then he goes too far and makes it worse again. Very likely he thinks I am hard to please, and may be he says, "Well, where is the place where it wants straightening?" I suppose I ought to answer mildly, but I am afraid I do not always do so:

"My friend, neither you nor I nor any other man can tell what will make it straight and right, by simply squinting and tinkering at it here and there. The only thing that can be done is to stretch a line or string of some sort; then take your spade and cut down close to the string, being careful meantime that nothing crowds the string one way or the other. In fact, you must not hit the string with your spade. Let the string alone; and if it is drawn up just tolerably tight, it will of itself take the shortest distance between the two stakes—an absolutely straight line."

The line or string settles the matter—it is positive and conclusive. It is exactly right, and there can be no question about it. In fact, there is no opinion in regard to the matter. All the world is in agreement. There is a great deal that is uncertain and unsettled in this world; but there are at least a few things that are absolute and always true. In our lessons in geometry we had one that seemed to me *then* a piece of foolishness. It was something like this: "For illustration, let us suppose that a straight line *is not* the shortest distance between two points, and that some other line would be shorter." And then follows a demonstration. Of course, it ends in an absurdity, for it *starts* in one. This form of logic is called a *reductio ad absurdum.*

We all admire straight lines where there is an attempt to make them straight. A few days ago I was invited to take a ride on our new railroad. The track was not only crooked sidewise, but it was crooked up and down; and we went up as one does in a boat over the waves, and then down again. We were also rocked from side to side. Finally I sat at the back end of the car, and looked back at the new track. It was not yet finished ready for rapid and heavy traffic. Finally we came to a railroad-crossing; and while they stopped briefly I took a look up and down one of our *great* railway lines—in fact, one of the *first* that was built through the State of Ohio. Oh what a contrast! On this great thoroughfare the tracks are worn so bright that they were literally unbroken bars of polished steel; and as they ran away off in the distance in either direction, they were so beautifully straight and true that it made a wonderful contrast with the *new* road I had just been riding on. Now, I suppose these lines of rails have been for years just as accurate and beautifully straight as they are now; but I never noticed it before. The experience I had just been having with *crookedness* had enabled me to appreciate the straight line. May be some of you, my friends, may begin to suspect ere this, that my remarks are drifting toward something of more importance than nice gardening or even skillful railroad building. It may have occurred to you before to-day that this is a world of crookedness, crooked things, and crooked people. Saddest of all, perhaps, to a greater or lesser extent, we have *crooked Christians.* What a thought! Lord, help us in our aspirations toward perfection. Now, the question confronts us, "Has the Christian a rule or plummet to shape his life by, as the gardener would shape his trenches? Has he a *line* that can be stretched so he may map out his pathway, and have it not only fair to look on in men's sight, but tolerably fair and pleasing in the sight of the great God above?" Yes, I am sure he has; and the crookedness, like that with the gardener, is because he *forgets* to apply his line. It is because he tinkers in trying to make *himself* straight—trying *every thing* first before he stretches the line of *God's holy word.* You may say there are differences of opinion among even conscientious Christians. Yes, so there are; but not in things of very great import. The whole world agrees that a straight line, as I have said, is the shortest distance between two points. The whole world also agrees, or at least *claims* to agree, to the oft-repeated phrase, that "honesty is the best policy"—at least, they *say so* in *words.* Then why do they not say so more in *actions?* Is there any one among us whose actions indicate every hour and minute of his life that he fairly believes that honesty is the best policy? Perhaps some one says, "Look here, brother Root, why don't *you yourself* apply that *line* you have been telling us about, and so show us yourself a perfectly straight Christian character?" I was really afraid, when I started out, that some of you would crowd me into just that corner. Now, if honesty *is* the best policy in all things, of course I should be *honest* in my *reply*, and I will try to be. Frankly, then, my dear friends, the reason why I am not a better man than I am, is (to tell the truth), that, for the time being, I like a *crooked* line better than a straight one. In other words, when *duty* plainly and clearly draws a straight line for me to live by, *inclination* clamors so *powerfully* that only crookedness comes of it all. Like the new railroad, I have mapped out a line that is *tolerably* *straight*. This straight line, I hope and believe, has this earth for *one* of its stakes, and heaven above for the *other*. I think there is progress plainly to be seen, from earth toward heaven; but, oh dear! what a spectacle of short small crooks, from the right to the left, and then up and then down! Is the line growing straighter as it gets further from earth and nearer to heaven? I believe it is.

Why should *anybody* prefer some other way than a straight line? In one sense I do not know, and in another I do know. Paul says, "It is no more I that do it, but sin that dwelleth in me." This gives me courage; for even Paul, the veteran saint, had experience in this unceasing war against sin. In fact, he *calls* it war. See: "But I see another law in my members, *warring* against the law of my mind, bringing me into captivity to the law of *sin* which is in my members." Then he adds, "Oh wretched man that I am, who shall deliver me from the body of this death?" Very likely these battles—this war that Paul speaks of—were silent and invisible conflicts. One might think that a man as busy as *I* am would have no time to give to spiritual conflicts, and perhaps he would have no time to listen or look to any thing that *Satan* has to offer. Not so. A week ago I had been congratulating myself that certain battles were fought and won. The enemy had fled, taking all his artillery. The battle-ground was clear. Not a glimpse nor vestige remained. I was happy over snatches of old hymns that told of deliverances, and of battles ended, and almost began to think that I could say with Paul, at least in one direction, "I have fought a good fight; I have kept the faith: henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous judge, shall give me at that day." I *did* remember the injunction, "Let him that thinketh he standeth take heed lest he fall;" but I felt myself so *perfectly* and *thoroughly* delivered from temptation that I even quoted the text, "As far as the east is from the west, so far hath he removed our transgressions from us." And I began to feel that God had given me a standing-place to labor that I never enjoyed before. For the first time, almost, I could look unmoved, and without any feeling whatever, on things that had been dangers and snares to me all my life long. Intemperate men find it is better for them to shun the old haunts of vice, as well as old companions. Well, now, suppose one who had battled with this fierce craving for thirty or forty years should suddenly find himself entirely *free* from his old appetite, and free from bondage. Suppose he could look upon old sins and old associations without a particle of desire in his heart for the things he had battled with all his life. I once heard a reformed man say in a revival meeting that it would be no trouble at all for him to walk home in the darkness of the night, with whisky-barrels lining the way on both sides of him, and tin cups hanging out, ready for him to drink from. God had delivered him so thoroughly and effectually from his old appetite that he was a new person. There was as little desire in his heart for the intoxicating cup as if he were some one who had never tasted it and knew nothing about it. This is putting it *strong*, I know; but I believe such deliverances do actually happen. They have come to me in my own experience, as a result of earnest and continual prayer. Sometimes I think I am not like humanity in general. I wonder if it is possible that the people about me go through such *fierce* battles as I do. They seldom say any thing about it, and their looks do not seem to indicate it; yet now and then something tells me that we are, after all, much alike.

Well, only about a week ago Satan came back in a new guise—at least, in a different one from any I had ever known before. The danger-signal sounded, but so faintly that I began to think may be this new experience was nothing particular out of the way. Another thing, it was a very strange and curious circumstance. A short time ago I spoke to you about the happy *surprises* God sends to those who are faithful. At first I almost began to think this was one of those "happy surprises." Duty said, "*Be careful;*" inclination said, "Let us watch the thing a while, anyhow, and find out the philosophy of it." I remembered the path that Christian and Hopeful took, and where it ended. Now, then, where is that line that can be drawn to tell us just what is the straight and narrow path and what is not it?

And now I have come to the point of my talk to-day. Is there such a line for our course of action? Oh! to be sure there is; and I am glad of this experience that has pointed it out to me so unmistakably. Did this new temptation cause me to love my Bible more? No, it did not. Did it draw me to my closet for private communion with my Savior? Not at all; for, come to think of it, my daily devotions alone by myself had been for some time skipped, and this was one thing that let Satan in. Did it bring me *nearer* to my Savior? Almost in dismay I discovered that my heart was growing cold, and that I was in no spiritual state to exhort any one to come to Christ. This is the line, dear friends: *Does the thing that you are undecided on draw you nearer to Jesus Christ?* Inclination said, "Well, never mind. All Christians have their ups and downs, and it is nothing strange if you should have yours." Besides, for the time being something *not quite* a straight line seemed so much more attractive than so strict and puritanical a life, that I almost felt like rebelling a little, and saying that the Bible commands are *too* strict. How about morning devotions, asking a blessing at the table, etc.? Oh! I got through with it all pretty well, but there was not any real *enthusiasm* and *bright joyousness* about it. Sunday was coming, and I should go to God's house, teach my Sunday-school class, and speak in prayer-meeting in the evening, feeling myself crippled to at least *some* extent—*crippled by sin*. Did you ever feel yourself in that predicament, my friend? Then came before my spiritual vision the hardest obstacle to surmount of all. The time had come for my semi-monthly Home talks through GLEANINGS. I have felt for years that these must be messages from the Holy Spirit; but the Holy Spirit could not speak to me nor through me with my present low spiritual state. "Ye can not serve God and mammon." This new thing that had proved to be so attractive must be banished, *rooted* out, and routed entirely. Now, I have told you many of these experiences. *Some* of you may tire of them; but *others* will not, I am sure. But let me say, that, of all the conflicts I have ever had with the prince of darkness, perhaps this was the most fierce. It seemed as if he had got his fetters about me, body and soul. I did not meditate nor purpose any thing bad or wrong—quite the contrary. Yet my better judgment told me what lay beyond. I was treading on the brink of danger. Prayer did but little good, because I did not really *wish* to give up a line of thought that seemed so wonderfully attractive, and that began to mix itself in with most of my thoughts. A new minister occupied the pulpit Sunday morning. In fact, he was a *student* in theology, not yet having completed his studies. I am always interested in boy preachers. Their inexperience always sets me to praying for them, and gives me sympathy for them. This young minister in his opening prayer, by a strange coincidence (as *most* people would call it), began praying for *me*. Of course, he prayed in a general way, and called nobody by name; but he spoke of a series of steps by which sinners are led, in a way that almost startled me. His sermon was about silent or invisible conflicts; and he described my state of mind. He spoke of conflicts that our nearest friend or relative knows nothing about, and never dreams of—conflicts where only *God* and the *sinner* look on. I commenced praying at first in a hopeless sort of way. It was hopeless, because I did not really *want* to be different. Yes, in *one* way I did want to be different, and in another way I did *not*. When the sermon was half over, however, I felt that Satan was losing his hold, and that *Christ Jesus* was coming nearer and nearer—yes, and *dearer* than he had *ever* been before. Do some of you say, "Why, brother Root, you have told us just such a story as this before"? Well, I tell it again to-day because it *needs* telling again. In the first place, it is not a safe thing for *me* to stay away from regular church services; neither is it a safe thing for *you*. The Bible says so again and again. Another thing, I have made a discovery since I wrote before. The discovery is this: The Christian always has a line right at hand to tell him when he is getting out of the straight and narrow path, and into crookedness. If there is any thing in your life that dulls your spiritual enjoyment, and seems to separate you from your Savior, give it up—let it go. Jesus said, "If thy right hand offend thee, cut it off and cast it from thee: for it is profitable for thee that one of thy members should perish, and not that thy whole body should be cast into hell." You are lost if you keep on in it. The arch enemy of humanity is more subtile, more ingenious, and sharper, than you ever dreamed he was. Peter warns us that our "adversary, the devil, walketh about, seeking whom he may devour."

Perhaps some have become wearied in our recent Sunday-school lessons by the incessant idolatry and idol-worship. We are inclined to think that it is a thing of the past, and that we of the United States of America have nothing, or comparatively nothing, to do with any such thing nowadays. God objected to idolatry, because it led the people away from him. Now, stretch the line I have been telling you of over whatever leads you away from God; and whatever leads you away from God is *idolatry*. It is as hateful in his sight now as was the idolatry of olden time, and we are in just as much *danger* now as then. Making garden, raising strawberries, caring for bees, and all such things, may take your time and attention, and may occupy a large part of your thoughts to keep you busy; but so long as you can kneel down and thank God for the fruits, flowers, and bees, these things will come right in that line that a Christian may follow. In fact, God is *pleased* to see us enjoy these things, because they *are* his gifts. A love for such industries helps us to be better *Christians;* and a love for God helps us to grow better *strawberries* and nicer *honey*. There is no *idolatry* about it, and no wrong about it—that is, generally speaking. Of course, one may be injudicious in launching out into such things in a headstrong way, and thus wrong his relatives or neighbors. But the world is full of simple, *honest* enjoyments without listening to Satan.

During such conflicts as I have mentioned, if you let cool reason look on and decide, you will find that, eventually, the matter resolves itself into two sides, with a straight, *sharply defined line* between them. One side has *God* and *Christ Jesus;* the other side has the *world* and *Satan*. You can not well be on *both* sides of this line. The only course is to renounce at *once* and *for ever* the thing that promises to be wrong and hateful. Turn your back resolutely to *every* appeal that Satan makes. I think it quite likely that he works more fiercely for one who stands prominently before the world, for *God*, and for the *right*. He realizes that every such person is an *enemy* and a *stumbling-block* in the way of *his* progress; and he leaves no stone unturned to accomplish his ends. His machinery, and the things that are at his command, are greater in variety, and more powerful, than either you or I dream of. Search the Scriptures, and see if they do not tell you the same thing.

There is another part to our text that I have hardly considered. One of Satan's plans is to convince his victim that he is perfectly *safe*. He persuades him that there is not a shadow of a chance of the secret being discovered. Oh what folly! Go and talk with the inmates of our jails, or even read the pitiful records of our daily papers. It is a constant wail of "Oh! I did not *mean* to do any thing wrong. I did not for a moment dream that this *could be* the outcome of what seemed so harmless and so innocent. Oh! what would I give—what *would* I give—if I could have a chance to do this thing over again?" Now, you may think, my dear friends, that I am taking a good deal of time and space in dwelling on temptation. But Satan's temptations are the stepping-stones to *crime*. If the boys and girls of America can be taught to view these silent and invisible battles as the turning and *deciding* point of their lives, our country shall be spared the fearful record of crime and iniquity that is boiling and bubbling up constantly first here and then there. No neighborhood is spared. Satan's captives are found first to the right of us and then to the left. A *neighbor's* family is wrecked. By and by the world is startled by something that had its starting-point in *your own home*. Let us remember and believe that Satan is constantly and *unceasingly* going about, seeking whom he may devour. Let us recognize the fact that he even goes away and leaves you free, that he may only get an advantage to trip you and entrap you unawares at some other time. Let us deliberate long and well before we consent to *any* act or thing that will rob us of the peace that only God can give. At the noon service a few days ago I asked the question as to what is worth most to us in this world. There was a diversity of replies. Somebody said, "A clear conscience." I should say, the peace of God in your heart, and a feeling that you are on friendly terms with the Savior of mankind, and enjoying communion with him.

The law of thy mouth is better unto me than thousands of gold and silver.—PSALM 119:72.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

BREED'S WEEDER.

Although we have had this nearly a year, we have only just discovered what a wonderful tool it is. There is this about it, however—the ground must be very fine, soft, and nice. Last season it was nearly all the time so wet that we could do nothing with it satisfactorily. This year during the dry weather we got our potato ground in beautiful order. It was rolled and harrowed until it was soft and fine. Then after the potatoes were planted the ground was rolled so as to be level and smooth. As soon as they were up fairly they were gone over with a

Planet cultivator; and then it occurred to me that they were in just the right condition for the weeder. The Planet tool had left a crust from six inches to a foot wide around the plants. In this crust the weeds were just starting. I thought it looked just right for the weeder; and although some of the potatoes were almost a foot high, into them we went. The steel teeth broke every bit of the crust up fine, rooted out all the weeds, and tipped the potatoes over so I really feared they were harmed, at least to some extent. A summer shower, however, came on in the afternoon, and in the evening the potatoes stood up just splendidly. As we passed along the rows I asked Mrs. Root if she ever saw a nicer job of hoeing.

"Yes," said she, "it is very nice. One of your careful, high-priced men must have done it."

And then I laughed as I replied, "Why, my dear wife, those potatoes have never been hoed *at all*. In fact, a hoe has not been among them. It was all done with the Breed weeder. The man who did it remarked, before he had got half through the first row, 'Mr. Root, this tool and the Planet cultivator are two of the best tools you have on your grounds.'"

It did just as good work in the corn. He asked if he should try it in the beans; but I told him it would break them off, I felt pretty sure; but in the afternoon he said it did the beans just as well as it did the corn and potatoes, and he did not see that a bean had been injured. To do this, however, your ground must be clean and fine, as I have said before; and if it crusts you must wait until just the proper time after a shower, so the crust will break easily. The fingers of the tool break it up just as you break it with your fingers—the corn, potatoes, and beans, being rooted so deeply they simply bend over and slip between the fingers. It is much on the plan of a smoothing-harrow, but it is worked by one horse, and is very much easier on the plants. As you need to go only *once* through every other row, you get along about *four times* as fast as you do with an ordinary cultivator. But the cultivator is needed occasionally as well as the weeder. Our experiment stations have said a good deal in regard to mutilating the roots by cultivating too deeply and too close to the plants. I agree with them; but I am sure *our ground* wants cultivating deep and fine while the plants are small. The ground must be worked fine, away down deep, before the seeds or plants are put in, and then it must be worked almost constantly to keep it from getting hard, and cracking during dry weather. When your ground becomes so hard that it cracks open with cracks that go down an inch or two, your crop is greatly injured. In some soils the only way to prevent such a state of affairs is constant stirring. When we have tremendous rains, such as we had last season, so that every thing settles down hard and compact, it is a pretty hard matter to keep your ground in order. Thorough underdraining at such a time is an absolute necessity. And then you must watch the condition of the soil, and just at the moment it works right, put all your force into the crops, and make your soft-dirt blanket to protect the surface before any baking or cracking can do you damage.

EVERETT'S HAND CULTIVATOR.

My impression is, that the Everett Seed Company (Indianapolis, Ind.) have made a real and decided improvement in every thing in the form of hand-tools. The novel idea consists in having a brace to propel the machine, to come right up against the body — say a little under the arms. This enables you to push the cultivator forward without crowding with the hands at all, the hands being left free to handle the hoes that do the work, just as you would handle a weeder in your hands. A good strong man, with this tool, is a pretty good substitute for a horse and cultivator; and when it comes to narrow rows in onion-beds, parsnips, vegetable oysters, etc., the tool is really a big institution. So many hand-cultivators have been sent us to test, I was reluctant about having another in our tool-house; and I waited quite a while, so as to be sure that this was really an improvement above all other hand-cultivators. I now feel satisfied that it is really quite a step ahead.

THE AMERICAN PEARL ONION FOR FALL PLANTING.

These onions, spoken of in our last issue, are, some of them, now (June 4th) 2¾ inches in diameter. They are of such pearly whiteness that all we have to do to get them ready for the market is to pull them and swash them in running water in the brook, and they are ready to tie up. Whether they will answer for hard, dry onions or not, I do not know. I have written to Johnson & Stokes, but they do not answer. We are getting 5 cents for a half-pound bunch, and the demand is ahead of the supply. Of course, I want to let some of them stand in the ground, to see how large they will grow. Very likely they must be used soon after pulling. The flavor is so mild that they may be eaten from the hand like an apple. Whether the onion is a good keeper or *not*, it is certainly a wonderful acquisition to market-gardeners. The work can all be done in the fall when things are not crowding; and all that is necessary is to cultivate them in the spring, when the ground is settled and dry enough. A great many of ours started a seed-stem; but after these were once cut off, they all seemed to go right to work making good-sized bulbs. At the present writing I can not see why they do not answer the purpose exactly as well as starting the seed in the greenhouse or from the bed, and planting out in the spring.

TOBACCO DUST NOT A SURE CURE, AFTER ALL.

With regret I am compelled to give notice that tobacco dust does not always manage the striped bug. During April and May it seemed to be a complete remedy; but one evening, early in June, I was greatly astonished to find our Hubbard squashes literally covered with striped bugs, and some of my squashes were so dried up that I could hardly see where they had been growing with great luxuriance only the day before. The tobacco dust seemed to hinder them for a time, but the Hubbard squash was too tempting a dainty; and when they got at it in droves there seemed to be a strength in numbers to resist even the powerful odor of the tobacco. The tobacco dust seemed, however, to answer the purpose perfectly for melons and cucumbers until to-day, June 10; and now we are going back to our wire-cloth screen again. And even with these the bugs seem to be so fierce that, unless the dirt is very thoroughly packed around the edges, they will get under and be just about as bad as if no screen were on. Another thing, just as soon as the leaf of a squash grows up so as to touch the wire cloth they gather about it like a lot of bees, and just riddle the leaf wherever they can reach through and take hold of it. We have been raising the screens up and banking the dirt a little higher around them. If they do not let up pretty soon I do not know what we shall do for Hubbard squashes. The principal part of the damage was done this season after the vines had their second leaves. Some of these second leaves are as large as the top of a teacup. We are hoping the wire-cloth screens will keep the bugs at bay until the bug time is over. They seldom trouble us very much after the first real warm weather. Now, then, friends, this is a little humilating, after having given tobacco dust such a recommendation as I have done. I was encouraged to do so because our experiment stations recommended it so strongly. So far it seems to rout the little black flea-beetle completely. If you paid us money for tobacco dust that has not been worth what it cost you, let us know and we will credit you what you paid.

DISPOSING OF YOUR STRAWBERRY CROP.

A little incident has just occurred, that suggests to me a way in which both growers and consumers can be greatly benefitted. An old bee-friend in Marietta, O., sent us, on Decoration day, two bushels of beautiful Sharpless, Jessie, and Bubach strawberries. They made the whole trip across our State, and reached us in almost as nice order as when shipped. At the same time, we received a crate of strawberries from a Cleveland commission house. The latter cost more, and were not in nearly as nice order. We sold the Marietta berries so well that I telegraphed to our friend to send us two bushels a day until further orders. We paid him 10 cts. a quart, delivered here, and it would do you good to see the people flock around those berries when the crates were opened. They are large fine berries, good measure, uniform all through, and put up in neat packages. We sold them at 13 cts. a quart, or two quarts for 25 cts. One bushel is usually sold here in the evening, and another goes on the wagon in the morning. So you see our friend across the State has furnished us strawberries fully two weeks before ours were ready to put on the market. Now, what is to hinder having just such arrangements between grower and consumer all over our land? No middleman has any thing to do with it; and the berries never stand still a minute, waiting for customers. The express charges are a little over a cent a quart. But perhaps many lines of these could be started, where the transportation would be even less. After strawberries are gone here, I should be very glad to make some such arrangement with somebody in the north. It seems a little strange that there should be a difference of two weeks in the period of ripening, between Medina and Marietta—a straight line, almost south, of only 135 miles. But I presume our Marietta friend escaped the frost that took off all our earliest berries. Here is a letter from the man himself:

> *Mr. Root:*—Your favor of the 3d is at hand. I will ship two bushels a day at your figures as long as I can afford it. By the way, how did you like the Bubachs I sent you? Do you grow them much larger on your ground? We picked 27½ bushels to-day of nice berries. Thank the Lord for the strawberries. I have given the bees plenty of room and told them to go it; and they do. To all appearances we are going to have an old-fashioned honey season.
>
> Marietta, O., June 4. R. STEHLE.

JUNE 15—JUST BEFORE GOING TO PRESS.

We can furnish you beautiful strong transplanted cabbage-plants in any quantity, and, in short, almost any other vegetable-plant you can think of. New strawberry-plants are fairly rooted, but perhaps would be better if not sent out before ten days or two weeks.—Last Saturday night I found the Hubbard squashes crowded so closely under their wire-cloth coverings that I decided to strip them all off, and let them take their chances with the bugs. This Monday morning I am rejoiced to see them growing with wonderful luxuriance, and not a bug in sight anywhere. It was not tobacco, and it was not the wire screens. What became of them? May be Prof. Cook can answer.—During these hot June days, do you ever get so thirsty that it seems as if the more you drink the thirstier you are? Well, get a chunk of ice as big as a goose-egg, and crunch it up between your teeth, and then swallow it as fast as you can. It will cool and refresh you wonderfully; and instead of harming your digestion in any way, I think you will find it just the contrary. This is one of the luxuries that come from having a carp-pond to give you beautiful ice for the summer time.—During hot weather there is no need of going to the trouble of getting hot water for the internal water cure. Just set a large-sized crock in your out-building, and keep it filled or partly filled with water. Now, if you can have right beside it a great big can of dry dust from the road, you can keep your out-building tidy and sweet-smelling. There should be a good-sized underdrain to communicate with the vault beneath, to take off all surplus water. Ours has a twelve-inch tile, and we manage to get fall enough to put it four feet below the surface of the ground.

CONVENTION NOTICES.

The Rock River Bee-keepers' Association will hold its next semi-annual meeting on Thursday, Aug. 6. J. M. BURTCH. Morrison, Ill.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Satan himself is transformed into an angel of light.—II. COR. 11:14.

BEE-KEEPING and amateur photography are somewhat alike. There is a fascination about both. But there is more money in bees.

LE RUCHER (*The Apiary*), one of our best French exchanges, devotes four pages to the illustration and description of the Hill smoker.

PROF. COOK writes that the last edition of his book has been changed, several pages being entirely reset and several cuts exchanged. We are glad to make the correction.

A DISPATCH from Washington, dated June 13, says that Assistant-secretary Spaulding has decided that queen-bees can be admitted entry free of duty. This will be highly gratifying to queen-breeders.

IT proved as we surmised, that the beautiful bees which we noticed on page 484, in our last issue, editorial columns, coming from J. F. Michael, came originally from L. N. Hearn, of Frenchville, W. Va. If we are correct, all these four and five-banded bees were developed by Mr. Hearn from stock which he obtained of G. M. Doolittle.

ELMER HUTCHINSON, Rogersville, Mich., has just sent us a cage of beautiful yellow bees, and they are all five-banded. Wonder if he selected out the yellowest, or took them off the frame just as they came. These yellow bees are so transparent through the abdomen that you can almost see the internal organs when the bees are placed on the window. Who is going to be the lucky chap to produce Italians with abdomens *all* yellow, with not even a trace of black?

Mr. Andreu, editor of our Spanish exchange, *Revista Apicola*, speaks of Gleanings as "perhaps the best apicultural journal that sees the light." Thanks, friend A. Light is just what we are after. By the way, some of our transatlantic friends seem to be as much surprised at the American way of doing things, especially on the part of the lady bee-keepers, as Columbus was when he came here on a picnic in 1492. *E pur si muove* (and yet it does move), as Galileo insisted.

Darsey Grimshaw, in the *British Bee Journal*, recommends apifuge as a protection from stings, as an excellent substitute for gloves. It did not work with us. As much as we detest gloves for working among bees ourselves, we should object still more to besmearing our hands all over with apifuge. When our bees sting, they do so without any preliminaries. They do not wait to reconnoiter and see whether the object which they are to sting smells right or is repulsive. They take aim, and go straight to the mark.

We have just received "A Practical Handbook of Apiculture," written in the Russian language by Mr. Andrieschiew, of Kiev, Russia. It contains 240 pages, nicely printed on good paper, and is thoroughly illustrated. The price of the book is one rouble, or 77 cents; but the postage on it from Russia was $1.55, as that country is not in the International Postal Union, or "Postal Combine," as some might call it. From France or Germany the postage would not have been over one-fifth of what it was from Russia. We hope our friends in Russia will soon join hands with the rest of the world, in postal affairs at least.

One of our foreign exchanges, we notice, advises rejecting all combs over four or five years old. We can not but consider this as unwise. We have some combs that have been in use ten years, and the bees that hatch from them are as nice and large as any we have in the yard. Old tough combs are good stock in trade with us; and while the advice given would boom our foundation trade, it would also at the same time be a serious pull on the pocket-books of the bee-keepers. Has not nature so provided that these old combs shall not get their cells reduced to a size detrimental to the fullest development of the bees? Such advice, if founded on an incorrect principle, is serious and damaging. How is this, ye sages of apiculture? See what Dr. Miller says under Straws.

We should be glad to have our readers tell what features or departments of the journal they like, in order that we may be guided as to what portions we should give most prominence. Do not be afraid to offer criticisms, providing they are given in the right spirit. A few days ago we received some criticisms from a subscriber, to the effect that the journal was deteriorating, and that we published communications that are worthless, etc. We were suspicious, and finally looked back over some old correspondence. The search revealed the fact that we had rejected manuscripts from our dissatisfied critic. Such critics have but little weight; but criticism from an honest well-wisher goes a long way, and has weight; and we desire, as far as possible, to keep in perfect feeling and touch of our subscribers.

Our new improved Benton shipping and mailing cage will deliver a queen to any part of the United States for one cent postage, and the method of introducing has been so perfected that we think it will satisfy the most exacting. This cage embodies some features of the Dixie cage of J. M. Jenkins, as well as some improvements of our own, dictated by long experience. The directions for introducing are printed on the inside of the cover. These not only tell how to introduce, but under what conditions. The outside of the cover has the card of the producer, as well as the words printed in big black type, "Queen-bee—deliver quick." Under this is indicated by dotted lines the place for the full address. The cage embodies the results of the work of several minds, and is very near the *ne plus ultra* of shipping and mailing cages. The proof of the pudding is in eating it, for we mail annually hundreds of queens.

MR. BALDENSPERGER, AND D. A. JONES'S RECOLLECTIONS OF HIM.

The *Canadian Bee Journal* copies the article from Mr. Ph. J. Baldensperger, which appeared in our issue of May 1, page 365. The editor appends a foot-note which we consider to be of such general interest that we copy it entire. To get the connection, please refer back to Mr. B.'s article, and then read the following:

> When we visited Palestine in 1879 and '80, among the pleasant acquaintances we met at Jerusalem was Mr. Baldensperger. We selected him as likely to make the best and most thorough bee-keeper in that section. He assisted us in making movable-comb hives in a little workshop belonging to the English school, outside the walls of Jerusalem, at the southwest corner, near the Tower of David. In the garden there, belonging to this school, was transferred from their ancient hives the first colonies of bees. We recollect when we commenced the operation how doubtful many of the scholars were, as well as the teachers, as to the success of our undertaking. After we had transferred one or two colonies, however, they took hold and assisted, exhibiting great interest. Mr. Baldensperger has had advantages that many have not had, and he can give very valuable information in reference to Palestine, or, in fact, about all of that section of country around the Mediterranean Sea. It is pleasant to know that the new mode of bee-keeping introduced in Palestine ten or twelve years ago is being made good use of, and that, through the influence of Mr. Baldensperger, many have become quite expert in the business.

OHIO'S BEE-INTERESTS FOR THE WORLD'S FAIR.

The Ohio State Bee-keepers' Association at Toledo appointed Dr. A. B. Mason, C. F. Muth, and J. B. Hains, to look after the securing of an appropriation by the State to provide for the expense of Ohio's apiarian exhibit at the Chicago Exposition. A few weeks ago, with this purpose in view, the doctor made a trip to Columbus and interviewed the commissioners of the World's Fair. One of them wrote him a letter saying that they would have another meeting in Cleveland, on Thursday, June 4, and suggested that then would be a good time for representatives of the Ohio State Bee-keepers' Association to be present and state their needs. Accordingly, at the summons of Dr. Mason, Mr. J. B. Hains, Miss Bennett, J. T. Calvert, and E. R. R., by appointment met at the Hollenden Hotel, whither, also, the commissioners of the World's Fair were to meet at 10 A. M. sharp. Mr. C. F. Muth had written Dr. Mason that he would be on hand, but did not put in an appearance; also other bee-keepers were invited, but they did not appear. After holding a short preliminary consultation, we agreed that we would not ask for any stated sum of money by way of an appropriation for the bee and honey interests, and that we would request the commissioners to put the whole matter into the hands of the Ohio State Bee-keepers' Association. We then repaired to a parlor where the commissioners were in session. At the proper time Dr. Mason as spokesman arose, and, after stating what the bee-keepers of other States were doing, and the importance of the bee and honey interests of the State, and the number of bee-keepers, requested that the commissioners put the whole matter into the hands of the State Association. As soon as the said association knew that they were to have charge of the preparing and caring for the exhibit, they would proceed to look after details. Dr. Mason was just the man to state our case. He made his modest little speech to a body of picked men. This body was made up of some of the best men in Ohio, full of business and vim; among them the Vice-president of the Baltimore & Ohio Railroad, Captain W. W. Peabody, the chairman of the board; Mr. Ritchie, and Hon. Harvey Platt, U. S. Commissioners for Ohio; L. N. Bonham, Secretary of the State Board of Agriculture, and others. One of the number, the chairman, was disposed to have a little fun; but he found he had his match in Dr. Mason. Said he, "Mr. Mason, about how much space will the Ohio bee-keepers want?" The doctor replied that he always liked to ask for enough. Turning to E. R. R., with a twinkle in his eye, he said, "I think we need about 10,000 square feet." The commissioners, and especially the chairman, were nonplused; and the Vice-president of the B. & O. railroad began to take out his pencil and to figure. In the meantime, the doctor behaved himself very circumspectly. Pretty soon they saw the joke, and began to laugh; and by dint of questioning, they learned that about 2500 square feet would answer.

It is some cause for congratulation to the bee-keepers of Ohio, that they have made their application early—perhaps as early as any other association; and through Dr. Mason they stand well with the commissioners, and will doubtless receive a fair share of the appropriation and space under their control.

Our delegation made a very favorable impression upon the commissioners, several of whom showed much interest in the matter, and voluntarily promised to do all they could for us. Dr. Mason has some personal friends among the commissioners, and we feel much elated at the prospects before us. We have asked the doctor to write up the matter for GLEANINGS. E. R.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE FOUNTAIN PUMP AND RUNAWAY SWARMS.

June 11.—For a day or so back, honey has been coming in, in the regular old-fashioned way. Brood-rearing all the spring has been going on with a wonderful impetus. If this condition of things is prevalent throughout the country, it means something encouraging for bee-keepers.

Swarming has started up in our home yard, and the Whitman force pump has so far proved to be a most indispensable implement. Yesterday there was a swarm that was making off for the woods, and had got pretty well started before one of our boys could get ahead of it and head it off with the force pump. He got them driven back partly when the water gave out, and he had to run and get another pailful. Before he could get back and resume operations, the bees seemed bent on going to the woods. Again he sent a spray of water among them, forced them back, and this time made them cluster. With our Manum swarmer (another indispensable implement) we had them secured, and, in a few minutes more, hived. By the way, if bee-keepers knew what an excellent machine that Manum swarmer is, there would be more of them in use.

AT THE SHANE YARD.

Day before yesterday I visited the Shane yard. I wheeled it down; and just the moment I arrived, a fine nice swarm was in the air. I had contemplated sitting down in the shade of a large apple-tree, and eating my lunch before beginning work; but that had to be postponed. This swarm, likewise started out for the woods; and then, oh how I wanted the fountain pump and a good big pail of water! In despair I ran to the hive whence they came, to see whether they had a clipped queen. Yes, there she was —a two-year-old queen, with both wings clipped. Before I could pick her up she went in at the entrance; and the bees, on reconnoitering to discover their queen, finally settled in two clusters. Although there were many tall trees in the vicinity, they were obliging enough to settle on the two smallest trees in the orchard, and on two of the lowest limbs at that, so I could reach them very conveniently. I soon hived them in two empty hives on empty combs. "Now," said I, "I will see whether those fellows will stay contented without brood, for some old veteran has said that brood has no effect either way." In a few minutes they both swarmed out again, and clustered. Again I put them back on dry combs, and again they both swarmed out. This time I gave each a frame of capped brood and unsealed larvæ. Again I put the bees back, and, presto! they both stayed just as quietly as if that had always been their home. Before they had their brood, they were crawling all over the hives in wild confusion, flying out at the entrance and then back. I am aware that unsealed larvæ will not *always* hold them. I have had newly hived swarms vacate in fifteen minutes, even after having given them larvæ. But as a general rule, in our experience, unsealed brood is a mighty good detainer. It makes them contented, and sort o' at home.

HOFFMAN FRAMES, AND HANDLING COLONIES IN HALVES.

As I previously stated, our Shane yard is on Hoffman frames. I have always *liked* them; but after manipulating this yard I was *delighted* with them. What fun it was to divide colonies! I could pick up four frames at a time, right from the brood-nest, with adhering bees, carry them to an empty hive, and the whole job was done, after giving each a few more empty frames. Don't you see, I handled colonies in *halves?* Then what fun it was to space the frames apart! With the wooden wedge, I entered it between the frames, gave it a little twist, and crowded the two halves of the brood-nest apart. Then in giving new frames of comb, all I had to do was to pry the combs apart and crowd them back, at one operation. But, to be frank, I must admit that I killed some bees. But remembering what Mr. Hoffman had said about blowing smoke in between the end-bars before crowding them up, I found I got along nicely and killed hardly a bee. This is on the principle of smoking bees down to put the cover on. See? Oh! there is a good deal in getting used to a thing, you know. I will tell you more about this in another column.

OUT-APIARIES AND BICYCLES; A SMART RIDER.

A Safety bicycle is a capital horse on which to go and visit out-apiaries. Since I have had the wheel I have made all my trips on it to our out-yard, when it was not muddy; and it would surprise you to know how it annihilates time in making trips. You won't believe it, but I once rode to our out-yard, seven miles distant, then to an adjoining town, and back to Medina again, making the whole distance of twenty miles in one hour and forty minutes. I do not count in this the time occupied in two stops of 15 or 20 minutes each. I could not do that every time; but in the instance given I was trying to see how *smart* I could be. At the time I did this, I was feeling in excellent spirits and health, and the roads were in prime condition. My *average* rate on fair roads is about nine miles an hour. You remember I once made forty-five miles in five hours among those York State hills. When the roads are *very bad* I *have* made as many as *three* miles an hour, and walked four-fifths of the time at that. Some time, if I don't forget it, I will tell you more about bicycles and out-apiaries.

GETTING USED TO A THING.

WHY THERE ARE SO MANY DIFFERENCES OF OPINION AMONG BEE-KEEPERS.

BY ERNEST R. ROOT.

While Mr. John H. Larrabee, of Vermont, was visiting us a few days ago, we talked over a good many things, old and new; and more than once we fell to wondering why it is that bee-keepers disagree so much as to the implements they would use.

Brown could not be induced to make even a trial of closed-end frames; and Jones has no sympathy with the man who will use loose swinging frames. Neither one can understand how the other can tolerate such awkward things. While these thoughts were passing between us mutually, "genial John" made this pertinent remark: "I tell you, Ernest, there is a good deal in getting used to a thing."

"That's it exactly," I replied. "How many times I have thought that these differences of experience, and differences of opinion in our fraternity are explainable by just this fact: 'There is a good deal in getting used to a thing.'"

I further told him that I thought a good many would not use fixed distances simply because they would not have patience to learn how to use them. Smith will try a few and exclaim: "There, that is just what I thought about them. I am not very often deceived in my impressions. I have had long experience in the apiary, and I know exactly what the bees like and what they do not like."

There are a good many such bee-keepers, and good ones, too, who, if they had a little more patience in trying some of these new-fangled notions, might save themselves a great deal of extra work. I have no doubt there are some who will give a little trial to the Hoffman frames, and then make a remark similar to the one just given. Why, the fact is, Mr. Hoffman manages 600 colonies on his frames, practically alone; and he says himself that he could not handle half that number were they on ordinary hanging frames. What I saw in his apiary, I think, abundantly bears out his statements. If what Mr. Hoffman says is true, can these bee-keepers afford not to give fixed distances a fair trial?

The other day I was talking with a bee-keeper who said, "Now, there are those bee-escapes you fellows are making such a big fuss about. I tested them a little bit last summer, and it is just as I expected. I could not make them work."

"Why," said I, "you do not know how to use them. It is all in getting use to a thing, you know. Why! Manum takes off a whole crop of comb honey with them in a couple of hours' time, and that, too, from a whole apiary of 100 colonies; Boardman, over here at East Townsend, O., has used them for years, and he is one of those bee-keepers who will not use a thing unless it is of real substantial service in the apiary. Reese and Dibbern are both honest men, and I think they are honest and fair in their statements. Do you set up your opinion against them when you have given the escapes only just a little trial on two or three hives? It is all in getting used to a thing, you know."

About six months ago I ran across a man who was using the Clark smoker. He had tried the Bingham, and, "ugh, ugh!" he would not use one; but the Clark suited him perfectly.

"Look here, my friend," said I, "I like to hear you praise the Clark smoker; but there are thousands and thousands who use a Bingham who would not use a Clark. Personally (and I have used the Bingham quite a little too) I think it is an excellent smoker, and there are times and places when I should much rather have it than the Clark; and perhaps I may be pardoned if I say there are times when I prefer the Clark. You do not know how to use the Bingham. It is all in getting used to a thing."

A year or so ago, in an apiary where I was visiting, I observed a Stanley honey-extractor. "Hello, there!" said I. "How does it work?"

"Do not like it at all," said he. "It takes a barn to house it, and it does not reverse worth a cent. The baskets fly around and bang together, and the chains get all tangled up."

"Why, my friend," I replied, "I have been in apiaries where they were very enthusiastic over it. It worked just splendid. You have not learned the knack of reversing the baskets. I have had very little experience with the thing, but let me see if I can not show you how those other fellows do." I grasped the handle, and performed the operation quite to my own satisfaction.

"But you did not have any combs in," said he.

"Well, put some in." But he did not have any handy. Said I: "It is all in getting used to a thing. If you reverse the baskets as easily as I, you ought not to have very much trouble."

Last summer, and a year ago last summer, I tried several times the shake-out function of the Heddon hive. It worked beautifully, so far as getting the bees all over the ground and up my trousers legs was concerned, and the queen could not be found. So far I can not make it work. If my good friend Mr. Heddon were here he would, to use Mr. Larrabee's expression, say that it is all in getting used to a thing; and he would proceed to go through a tremulous motion that would leave you and me in no doubt whatever as to its successful working. Some day I hope to have the privilege of seeing Mr. Heddon perform that very operation—in a word, let him teach me how to get used to the thing.

It is all in getting used to a thing. "Look here, young Root," some of you will say, "that is not so."

Just wait a minute until I qualify. We can not get used to a thing unless that thing has real merit. If good, competent bee-keepers acquire a certain knack, whereby they can shorten one or more days of labor in the apiary, then we can. We can not explain away all these differences by locality. To be more fair, and to be nearer the truth, we should say we have not yet acquired the knack. Perhaps I can not say, in every case, that it is *all* in getting used to a thing; but I will say there is a great deal in getting used to it.—*Read at the Ohio State Convention.*

THE FUND FOR HELEN KELLER.

SOME GOOD NEWS FROM TOMMY STRINGER.

In response to the appeal in our last issue, the following friends have responded by the amounts placed opposite their names, and the sum of $49.45 has been forwarded, that little Tommy may be emancipated from darkness to the light of civilization and Christianity.

G. W. Harrison, Copley, O	$1 00
A. A. Simpson, Swartz, Pa	60
"Helen," Farina, Ill	1.00
For Tommy S., Warrenton, Va	30
E. West, Channahan, Ill	1 00
C. V. Kintner, Carrollton, O	1 00
G. W. Gates, Bartlett, Tenn	1 45
"A Reader," Leawood Mills, Md	60
A. Gardner, La Salle, Ill	1 00
Mrs. C. B. Moore, White Plains, N. Y	1 00
C. J. Quinby, White Plains, N. Y	1 00
W. J Ellison, Catchall, S. C	2 50
"For Tommy," Crystal Springs, Miss	1 00
J. A. Buchanan, Holliday's Cove, W. Va	1 00
Factory Hands	10 00
Geo. O. Goodhue, Danville, Can	5 00
A. I. Root, Medina, O	20 00

Dear Mr. Root: — Gleanings for June 1st is at hand, and I am *much more than pleased* with the warm, whole-hearted reception and generous start you give to my little friend's unselfish appeal. The only thing I would have changed is your reference to myself, which I fear is much more than I deserve; but I thank you most sincerely for the heart that prompts such kindly feeling toward me. Yes, I am resting, a poor undeserving sinner, upon the Savior's finished work, and only regret I did not begin to follow him earlier, and that I do not serve him better. Although the amount raised for little Tommy is not nearly sufficient to educate and maintain him, still it is large enough to induce Mr. Anagnos to send for the little fellow, and make a start, and he is now at the institute in Boston. Helen is perfectly delighted. I have had two letters from her since he came. In the last one she thus speaks of him: "Tommy is well and happy, but does not like to spell yet; but that is because he does not realize what a wonderful thing our language is. When he can tell us what is in his mind, and we can tell him that we love him, he will learn very rapidly." Dear, unselfish, loving little heart! I hope, my dear kind friend, that you may some day have the pleasure of meeting her yourself here on earth. If you do you will get, I am sure, a stimulus and inspiration from her sunny, cheery disposition, loving heart, and most wonderful mind, that you will not soon forget. I shall watch with very great interest the reception her appeal receives from our brother bee-keepers. I am sure it will be a most hearty one.

June 9.—Since the above writing I have received your kind letter of the 3d, with the extra copies of Gleanings, for which I thank you very much. I will forward same to Helen's friends in Boston at once.

Thanking you again most sincerely for all your very great kindness, I remain—

Danville, Que. Geo. O. Goodhue.

SPECIAL NOTICES.

THE IMPROVED BENTON CAGE.

This cage, spoken of elsewhere, will be sent complete, filled with candy, with directions for introducing, etc., as well as instructions to the postal authorities, 3 for a dime; 10 for 25 cts.; 100 for $2.00. Without candy or wire cloth, one-half these prices. If sent by mail, add one cent per cage extra.

LAWN-MOWERS FIVE PER CENT OFF.

Now is the time when you need a good lawn-mower to keep your yard and apiary clipped down and looking neat. To reduce our large stock of machines, as shown on page 50 of our price list, also on next page of this number, we will give a special discount of five per cent for the next 60 days to all who order from this notice, and mention it.

BUSINESS AT THIS DATE.

Every day brings encouraging reports for a good honey yield, and the bright outlook is very marked in the increase of orders so far this month. For the first two weeks of June we have received nearly as many orders as during the whole month of May; and notwithstanding this increase we are keeping up close, most orders being filled in three days or less after they reach us.

OLD-STYLE DOVETAILED HIVES.

We still have a good supply of the last year's pattern of Dovetailed hives, all ready to ship at a moment's notice, at 10 cents each less than prices of present make, given on page 21 of our price list. The only difference is, that they have no followers, wedges, nor division-boards, and are ½ inch narrower. The same discounts for quantity and to dealers apply.

HONEY QUEENS.

We have a good stock of them in the South, and our Southern breeder writes that they are very nice. Price 25 per cent more than our regular queens; viz., untested honey queens, each, this month, $1.56; in July, $1.25. Tested honey queens, each, this month, $3.33; same in July, $2.50. These queens are bred from a mother whose bees were remarkable as honey-gatherers. While the bees of these queens may not equal the bees of the original queen in energy, the chances are that they will. Their bees are rather leather-colored than otherwise.

JAPANESE BUCKWHEAT.

This has been going off very rapidly within the past few days, and by the time this reaches our readers we shall doubtless be sold out of all seed available that we know of. We may find more, so as to keep up all orders, but shall not be able to sustain present prices. If any of our readers in this or adjoining States have any choice seed to sell, let us know at once how much you have, and what you want for it. In this way we will try to divide up so that all can be supplied, and we will bill it at the lowest price we can, depending on what we have to pay.

OLD-STYLE EXTRACTORS CHEAP.

A year ago we began making our honey-extractors of two-cross tin, and with larger honey-gate; also about two inches deeper, to prevent honey going over the edge. We have still on hand a few of the old-style machines that will answer just as well for those who have only a small amount of extracting to do. We will sell these, to close out, as follows:

No. 1, for Gallup frame, 11¼x11¼, at $5.00. We have four of these.

No. 5, for Simp. or L. frame, $5.50. We have five of these.

No. 5, with 50 lbs. extra room below, $6.00. We have nine of these.

No. 8, for frames up to 12 inches deep and 18 inches long, $6.50. We have five of these.

No. 9, for frames up to 13 inches deep and 18 inches long, $6.50. We have only one.

WHITE AND CREAM SECTIONS.

We have finally got out of the woods on sections. For over a year, excepting the time between August and March last, when we had choice lumber from Michigan, we have been crippled, both in quantity and quality of our output of sections, because of a scarcity of suitable dry white basswood. Having two very open winters in succession, with soft ground, and roads almost impassable, we failed in getting a good supply of suitable basswood lumber cut. In order that it may dry white, suitable for sections, it must be cut in winter. The cream sections we have been offering are made from lumber just as good in every respect as the very best, except color; and this off color was caused by its being cut in warm weather. Last winter was quite favorable, and we have secured nearly twice what we usually use in one season, of the nicest white basswood we ever had. Over half of this (400,000 ft.) is to come from Michigan. We have been using from this year's lumber for the past three months by kiln drying, and picking out the driest planks we could find; but till within a short time it has not worked to our satisfaction. Where complaints of poor quality have been made, we have endeavored, by rebate and otherwise, to give satisfaction. As we say, we are now out of the woods, having an almost unlimited supply of choice lumber, and hope that from now on we shall have more of praise and less complaint of the quality of our sections, as we have begun to have already. We are out of cream

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

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STRAY STRAWS

FROM DR. C. C. MILLER.

I LIKE the Dovetailed hive.

WHITE CLOVER is now blooming, June 15.

CALIFORNIA'S honey crop, last year, was nine-tenths extracted.

ALLEY says, "In future only a 7-frame (L. size) will be used in the Bay State Apiary."

THE *Bee World* has a Texas department conducted by Mrs. Jennie Atchley. It's good.

A TRADE-MARK for bee-keepers is characterized by editor Newman as "that trade-mark foolishness."

HOREHOUND HONEY, I think, has the reputation of being bitter. A. C. Aten (*A. B. J.*) says it is not.

"THE SOUTHERN STATES" is the heading of a department in the *Missouri Bee-keeper*, conducted by Mrs. Jennie Atchley.

CANADA has now a place where bee-keeping is taught — Ontario Bee-keepers' College, Guelph, Ont.; Rev. W. F. Clarke, Principal.

FIRST CLOVER-BLOSSOM here, May 22. Bees commenced working on clover ten days later. Ten days has been the rule for several years.

THAT DAKOTA MAN (L. R. HILLMAN, p. 476) has hit on my rule to prevent spring dwindling —keep 'em in the cellar till it's too late to dwindle.

CHICKENS are not likely to be hatched to any extent by bees, but there would be one advantage—the chickens would not get very lousy from the bees.

THAT CASE of brood in so many sections (E. H. Shaeffle, p. 475) is a tough one. Were separators used? How wide were the sections? How much room in the brood-chamber?

W. Z. HUTCHINSON, at the Toledo convention, admitted in a manly way that his plan of hiving swarms upon starters only could not be depended upon, in general, for securing perfect combs.

BEES HAVE CLAWS by which they can hang on to a board upside down. But if it's glass, the claws will not hold, and then an oily secretion of the foot allows them to *stick*. Wet the glass, and the oily foot will not stick; and down comes your bee.

WORMY COMBS are thus treated by Mrs. Jennie Atchley (*Bee World*): "Soak in clear water 24 hours, and hang out to dry, or throw water out with the extractor, and hang so they don't touch." If this settles the fat old fellows an inch long, it beats brimstone.

CARNIOLAN (or Krainer) bees come in for a good share of attention in the *Missouri B. K.* The claim there made is, that the gray type are the only pure ones, any showing of yellow being a showing of admixture.

BRACE AND BURR combs have always been confused in my mind till J. A. Green explained on p. 473 that brace-combs are built between combs, and burr-combs on top. Plain enough, when some one shows you. Thank you, Jimmie.

WAX-WORMS. The types on page 458 make friend Root say worms "generally live over" winter, when, of course, he meant "do not live over." My experience agrees, and I find the combs of a colony which has died invariably become wormy where the bees had clustered.

CONTRACTIONISTS seem to be all settling toward this point: "Expand your colonies all you can; get them just as strong as possible up to the time of the chief honey-flow; then contract." I feel sure the expansion is all right; I don't know so well about the after-contraction.

BURR-COMBS are desired by some, as ladders to climb up into the supers. With as much space as a good many of my hives have over top-bars, I think the bees would like them; but with only ¼ inch space, any smart bee ought to be able to rear on her hind feet and reach up without a ladder.

DOOLITTLE advises, in *Am. Bee-keeper*, to allow about two square inches of drone comb in one of the outside frames of each hive. Then you will know just where to look for it, and can shave off the drones' heads every 20 days, and the bees will not try so hard to build drone comb elsewhere.

THE CHERRY CROP at Vacaville, Cal., formerly large, has of late years been a very uncertain quantity. One firm, thinking that the decrease in bees might have something to do with it, last year introduced several colonies of bees, with a very gratifying increase in the cherry crop. They are testing the matter more fully this year. (*A. B. J.*)

ROBBERS. The *C. B. J.* says if robbers attack a weak colony, and you remove the colony, put in its place an empty hive with a bee-escape, so the robbers can get in but not out. "Leave the bees fooling around in the empty hive until night, and then open it and let them go home just about sundown, and they will come to the conclusion that there is very little profit in that kind of business. They won't be caught there more than two days in succession."

BEE-PAPERS, years ago, rather ignored the existence of each other, and there didn't appear to be any great friendship between their editors. Then animosity seemed to fade away, and they treated one another politely, although somewhat as strangers. Latterly this polite age seems to be giving way to a sociable age, and there seems to be a very friendly feeling growing up. Instead of ignoring each other's existence, they quote from each other, and the correspondents of the different papers have lots of fun making good-natured flings at each other.

GENERAL CORRESPONDENCE.

HOW SWARMING IS CONDUCTED.

AGRICULTURAL EDITORS WHO NEED POSTING.

Picking up an agricultural paper lately, I was surprised to read the "bee-department," in reply to a question asked of the editor, that "only old bees go with the swarm," while in another paper I find that the young queen in the parent colony "hatches in less than twenty-four hours after the swarm has issued." Coming, as these statements do, from as high authority as *editors*, they ought to be correct; nevertheless, all my experience with natural swarming goes to prove them incorrect. If editors are not sufficiently well posted to know how, and under what conditions a natural swarm issues, it might be well to have a little light on the subject for the "rank and file" of bee-keepers, and especially those young in the business; so, with friend Root's permission, I will say a few words regarding the matter in GLEANINGS, the same being more especially designed for those who have not been in the bee-business for any great length of time. I have always used natural swarming as a means of increase, and experimented largely, to know under what conditions swarms issued, as a rule, and have found, as regards the age of bees, that bees of all ages in about equal proportion leave the parent hive, from the old forager to the bee that has not been out of its cell for more than a day or two. Many times have I seen the ground in front of the hive nearly covered with bees so young as to be unable to fly; and as often have I seen the veterans with their jagged wings hanging with the swarm, as well as those having their pollen-baskets filled with pollen. Thus we have the field-bees, the wax-workers, and the nurse-bees, in about equal proportions, thus showing that the all-wise Creator knew how things should be when he pronounced all which he had made, good. If it were not for young bees going with the swarm, the hive would be nearly depopulated by the bees dying of old age, before the brood could hatch out to take their places. Again, if all were old or field bees, the hive could not be filled as profitably with comb; for when, in a normal condition, the bees between the ages of eight and twenty-four days old are the ones which do this work. That this division of bees in a swarm is just as it should be, is the reason that I prefer natural to artificial increase.

But, let us look inside of the hive when preparations for swarming are being made, and see if we can not arrive at the truth in the matter, as regards the condition under which the swarm issues, when the first queen hatches, etc. The first indication of swarming is the laying of eggs in the drone comb. While eggs in drone-cells is not a sure sign that a swarm will issue, yet, as far as I have observed, swarms never do issue without eggs being laid therein.

If the weather is propitious, the next step is the building of queen-cells, soon after which the queen deposits eggs in them. In three days these eggs hatch into larvæ, and said larvæ are fed an abundance of food by the nurse-bees for six days, when the cells containing the embryo queens are sealed over. If no bad weather has intervened, the swarm issues the next day, the old queen going with the swarm. Now, bear in mind that this is the rule with the black or German bees, and generally with all the other races; still, the Italians, Cyprians, and Syrians often swarm when the eggs are first laid in the queen-cells, and sometimes without the least preparation at all except drones, in a time when swarming runs high in an apiary. All good authorities admit that the queen larva remains seven days in the cell, as my experience also proves, and I can not see how any one could make such a mistake as to say the queen hatches in twenty-four hours. When bad weather occurs, the thing is barely possible for the swarm to be kept back for six days after they would naturally issue, in which case the first queen would hatch in twenty-four hours. But this is something I have had occur but very few times since I kept bees, for in such cases the bees generally destroy the queen-cells, and postpone swarming for an indefinite period. So I find, as a rule, that the first queen emerges from her cell from six to seven days after the first swarm. If more swarms issue, they usually come out two days after, or from the eighth to the ninth day after the first, and never later than the sixteenth day. As soon as it is decided that no more swarms shall issue, all queens in the cells are destroyed, when in from five to nine days the queen goes out to be fertilized, two days after which she commences to lay. If the apiarist stops all after-swarming by the cutting of cells, or any other means which keep all of the bees in the old hive together after the first issue, I find that the young queen is much slower in going out on her wedding-trip, and often does not commence to lay till the twelfth to fifteenth day. Where any one wishes to make artificial increase it is well to understand just how natural swarming is conducted, for with such knowledge one is more apt to succeed in having the right proportion of both young and old bees in the two parts after dividing. G. M. DOOLITTLE.

Borodino, N. Y., June, 1891.

SOMETHING SCIENTIFIC ABOUT WAX OF ALL KINDS.

HOW TO DETECT ADULTERATION IN BEESWAX.

The following article is taken from the pages of *Le Rucher*, one of our French exchanges. Although somewhat scientific in spots, we believe it is of such general interest that we are warranted in giving place to it. The entire treatise on this subject extends through several numbers of our valued exchange, and we feel that they have done bee-keepers a good service in probing the matter with that thoroughness which is so characteristic of the Europeans. The original article is, of course, in French, which our proof-reader translates as follows:

Lately I was unwrapping, in the presence of one of my friends, a package the contents of which I wished to show him. Scarcely had I opened it when he exclaimed:

"Oh! see what a pretty piece of beeswax!"

"Beeswax!" said I; "nary a bit."

"You are deceived," said he; "it is beautiful wax;" and, taking a piece in his fingers, he began to examine it more closely. After he had examined it in every way he added:

“And you speak in earnest?”

“I do. In that product which you hold at this moment there is not to be found a gramme of beeswax.”

He looked at me smilingly; but noticing my serious looks, together with the positive tone of my words, he manifested his surprise.

“Well, now,” said I, “take the pains to smell of that stuff and tell me whether it has the agreeable odor of beeswax.”

“Why, it is absolutely odorless; but sometimes wax loses its odor. I can hardly believe that it is not pure beeswax.”

While he spoke I took from my pocket a second package, which I soon unfolded before his eyes. “See,” said I, “a piece of pure yellow beeswax—genuine wax this time. Compare the two products. The one you are holding is odorless and nearly transparent; the other emits the odor of beeswax, which you know so well, and is quite dull. On the one hand you have a mineral product; on the other, an animal product. This animal product is pure beeswax which we get in our hives, and which we furnish in business, such as you see there. This mineral product is ceresin, or purified ozokerite, of which so much is said now, and which did considerable at first, for which a substitute has been found. The unscrupulous speculator began by mixing with his beeswax, little by little, this stuff; and, emboldened by the success of his speculation, and the greed for gain, at last ended by selling this foreign product, unmixed, for pure beeswax, realizing, for the more beautiful product, a profit of 90 per cent. Genuine wax has not ceased to fall in price; and from 68 cts., at which it was sold several years ago, it has actually fallen to 47 cts. in consequence of this fraud. Consumers do just what you have done. They trust to appearances, and buy ceresin for beeswax.”

My friend could hardly believe his ears, which is, however, easily to be understood, for he, like everybody else, was ignorant of these things.

Let us leave him to his surprise, and talk seriously. I seem to hear the buzzing of several thousands of voices who put to me the same question:

“What is ozokerite?”

“What is ceresin?”

To answer briefly, it is necessary to say: Ozokerite is a crude mineral wax, or, rather, a mineral wax that has been subjected to only one melting. Ceresin is mineral wax which has been completely purified—that is, ready for use. Little known at present, although sold in large quantities, it has received at different times the following names:

Mineral wax; ceresin; cerosin; ozocertine; ozokerite; ozocerite; fossil wax; odoriferous wax; native paraffine; fossil Moldavian wax.

Several authors and dictionaries have described it.

1. It is a carboniferous combustible, belonging to the bitumens, which resembles wax; can be kneaded, like wax, and emits an agreeable aromatic odor.

2. It is a mineral which was discovered at Slanik, in Moldavia, in sandstone, accompanied with lignite and rock-salt. It is found, in this repository, in such abundance that the inhabitants use it for lighting purposes. It is, in fact, a combustible composed entirely of carbon and hydrogen—a true carburet of hydrogen. Ozokerite resembles beeswax in its consistency and transparency; it possesses, at the same time, a marked aromatic odor. These properties have given it the name of fossil Moldavian wax.

3. Again, it is a substance composed essentially of paraffine, burning with a very brilliant flame, and it is found in sufficient quantities in the bosom of the earth in Moldavia, near Slanik and Zetriska, which the people melt and run in molds to make wax tapers.

4. It is a mixture of hydro-carburets, of high molecular weight, of a waxy consistency; of a general brown or greenish cast, a peculiar aromatic odor, greasy to the touch; is found at Slanik, Vienna, Borislaw in Galicia, and in the coal-pits of Urpeth, near Newcastle, England.

In short, ozokerite is a substance which is found in the bosom of the earth in Galicia, in Romania, and on the western coast of the Caspian Sea. It has received the name of mineral wax on account of its resemblance to beeswax. To extract it, it is necessary to bore wells to get to the place where it is found in strata. These wells can not be made except with extreme caution; and the men who do this work have time only to escape; for it nearly always happens that the material, crowded by the gas stored in the mine, rises rapidly, even to the surface of the ground.

Crude ozokerite, such as is taken from the ground, more nearly resembles the smooth wax with which we are familiar, and, like it, admits of being kneaded; but it soon becomes hard, and assumes a marbled appearance—sometimes clear yellow, sometimes dark green, and sometimes even black. It is only after having been melted and re-melted several times that it looks like beeswax. There exist several varieties of mineral wax, known under the names of *wax*, or *mountain suet; fichtelite, hartite, ixolite, koulite, scheerenite, Urpethite*, and *Zetrisikite*, which are of a greasy nature, sometimes opaque, sometimes transparent, but commonly of a yellowish white or a grayish white, and hold, so to speak, a middle place between resins and bitumens. How shall we recognize the presence of ceresin in beeswax? It is well known, that it is difficult to analyze pure beeswax. It is even claimed that this operation is impossible; as witness the *Revue Internationale*, where the following lines may be read:

“Wax is but little known; and even chemists like to talk but little about it. Some years ago I received some wax, of which the odor, the specific gravity, and the melting-point, showed adulteration. To be sure of it I applied to the Polytechnic School of Zurich, and asked if they would be willing to put that wax to a quantitative and qualificative analysis, in order to ascertain not only what material was used in its adulteration, but also in what proportions, and to enable one to found, on that analysis, a complaint before the courts. The answer was no. They declared to me that the state of chemical science would not permit of making any such analysis.”

Nevertheless, it is possible to recognize the presence of mineral wax and paraffine in beeswax by using the following method:

Place in a porcelain dish some sulphuric acid. Warm it over some alcohol; and, in order that the wax may be attacked more violently, scrape it off in shavings as for bleaching. The shavings being thin, the beeswax is immediately attacked and carbonized by the sulphuric acid, while the mineral wax or paraffine is not affected—or, at least, only partially so. After boiling for half a minute it is allowed to cool. The beeswax is in a heap like a carbonized (or charred) sponge, and the ceresine forms a transparent film on the surface. If there is a film, there is ceresin or paraffine. If there is only a charred mass, there is no ceresin.

[Are we to understand from the above that chemists at the present day, in our country, are unable to detect impure wax by chemical analysis? I should like to have Prof. Cook answer it. Some years ago we experimented considerably with ceresin; but I believe it is universally decided that it would not answer for making foundation, even though only a small per cent of ceresin be added to pure beeswax. When the contents of the hive are subjected to the extreme heat of summer, the combs melt, and the contents go to the bottom of the hive in a heap. The man who gets such foundation is damaged far worse than if he received counterfeit money.]

CHIPS FROM E. FRANCE.

HOW OLD MAY WORKERS BE, AND STILL GATHER HONEY AND BUILD COMBS?

On page 421 Bro. Doolittle takes up the subject of old bees secreting wax. He thinks I made some mistake about that colony spoken of on page 319, that built comb for six weeks. He thinks that perhaps there were some frames of brood put into the hives with the swarms. No, sir; there was no mistake about the statement at all. There was no brood put in with the swarms. I don't know how long the bees lived; but one thing I do know—the second swarm, or the old bees in the second hive, lived long enough to raise other bees to take their places. They wintered outdoors, and came out in good condition the next spring. I am going to test this same thing again this summer. I had a swarm on the 9th of June, and another on the 10th. I gave them nothing but frames with 1½-inch foundation starters. I intend to keep those bees building combs, as long as they will live, and not allow them to hatch a single bee; then we shall see whether 45 days will finish them. I don't think it will.

I am now going to tell you another. I have known bees in my home yard, that I knew to be 61 days old. On the 13th day of April I was looking over bees in the home yard. I found two queenless colonies. At that time there was not a particle of brood in either of them. No. 1 I marked down, "No queen, no brood, no eggs." This was a medium colony, not strong; had a little honey. I thought the bees would keep the combs clear of moths until I could use them, so I let it stand just as it was. No. 2, queenless colony, April 13, were strong for that time of year. They, too, had no brood at all—had more honey than they could use. They were in a two-story L. hive, eight-frames in each story. I took out five combs of honey to feed other bees with, and left them in that way with an empty space where the five combs were taken out. To-day, June 13, just two months, No. 1 has about a pint of old bees—combs clear of moths. No. 2 has over a quart of bees—old shiny fellows. But they are at work gathering honey, and are making more than a living. How old those bees were before April 13, I don't know. But it is my opinion that No. 1 at least was queenless when they went into winter. They both wintered out of doors.

Now, friends, some of you who have plenty of bees so you can spare a swarm, just hive a good swarm and keep them building comb as long as they will. Take away all brood before any hatch out, and see if 45 days will use them up. If the honey-flow gives out, feed them all they can use.

C. G. Looft, in May 15 Gleanings, page 219, tells how to catch and clip queens. We clip as many queens as most folks; but we can not follow his directions. We have only two hands to work with. His way requires one hand to hold the comb, one to catch the queen, and another to use the shears. When it comes right down to business, we catch the queen as we can —by the wings if we can. But we can not always do it. If we see one we catch her any way we can. Most likely she is on a run, and we have to secure her before she is lost sight of. If we can not get hold of the wing, just pick her up as you would a pig—not by the ears, but any way you can get hold of her. Don't squeeze her hard. Very often we find the queen in the hive after all the combs are out. There is not much danger of injuring a queen after one gets used to handling them.

Bees have gathered considerable honeydew—black strong stuff. They appear to be working very strong now on clover. We must get all the combs emptied now as soon as possible, to get rid of the dark dew honey. I left the home yard and helped the boys clip queens in the out-apiaries, commencing on the 9th. The home yard began to swarm, and has been at it every day since. Over 40 swarms have come out. I hived 8 of them on empty combs. The others are returned, and have put on the third stories.

E. France.

Platteville, Wis., June 13.

[Friend F., haven't circumstances something to do with this matter of the age of worker-bees? In introducing Italian queens it has sometimes seemed that worker-bees did not last more than five or six weeks during the gathering season. At other times they seem to hold out about as long as you mention. Any one who is acquainted with friend France would probably know that, when he starts to catch a queen, he usually gets her; but I confess I always feel nervous when they begin to squirm in my fingers, and twist around and bite, and try to get away. A good many times I am so afraid of pinching her highness that she twists out of my fingers and flies away. Then what an anxious time it is for the novice! All he has to do, as a rule, is to sit down or lie down and she will soon come back and alight on the combs, or go in with the other bees into the entrance.]

BEE-ESCAPES.

A SUCCESSFUL REPORT FROM J. A. GREEN.

I tried a number of different devices last season. Almost all of them worked very satisfactorily. The one we liked best, though, was the Porter spring escape. It cleaned the supers of bees about as rapidly and thoroughly as any, and they *stayed* out. With some of the other escapes the bees would sometimes find their way back; but with the Porter escape they can not do this.

Having been the first one to call the attention of bee-keepers to the fact that they were neglecting this valuable invention, I can say that the bee-escape is no longer an experiment with me, but an appliance of great practical value. By its use some of the most laborious and disagreeable work of the apiary is almost done away with. This reduction of labor makes it invaluable in large apiaries; but even in the smallest it will save time, stings, and annoyance. The bee-keeping world owes a debt of gratitude to Mr. Reese for giving his invention so freely and generously to his fellow-men.

CUTTING OUT QUEEN-CELLS TO PREVENT SWARMING.

I once believed, as many people do yet, that keeping the queen-cells cut out would prevent bees from swarming. That faith received a rude shock when I found that bees often swarmed before they had started queen-cells, sometimes even not starting them for two or three days afterward. This was with Italians. It is possible that, with black bees, the method could be made to succeed, although it is not at all practical. The objections are, the great amount of labor required, and the great liability of overlooking one or more cells. If any are left they might as well all be left. The same objections apply to this method of preventing second swarms. I once received a communication from a man who had a new method of preventing after-swarming. He had the highest opinion of its practicability and value. He said it would be worth $50.00 a year in every apiary of any size. I agreed to help him test it more thoroughly before he made it public, and then he revealed to me the great secret. What do you suppose it was? Simply cutting out all queen-cells but one as soon as a colony swarmed. Considerable correspondence, though, failed to convince him that it was not something entirely new and valuable, and very likely he will be highly indignant at me for revealing it now. J. A. GREEN.

Dayton, Ill., June 11.

[Friend G., your man's valuable secret is right in line with the principal part of the great secrets offered for a sum of money.]

THE DADANTS ON PREVENTING INCREASE.

WHEN TO CUT OUT QUEEN-CELLS, ETC.

What do the Dadants mean when they say (Question 186), "To prevent increase, return swarms 48 hours after swarming?" also, "cutting out queen-cells does no good?" For many years I have cut out the queen-cells (if the queen was not removed), and immediately returned swarms. Of course, this was likely to have to be repeated. Swarming is now on; and if their too indefinite reply involves something valuable, I should be grateful for immediate information on the subject.

Excelsior, Minn., June 10. J. W. MURRAY.

[We sent the above to the Dadants, who reply:]

Friend Root:—Replying to the inquiry of J. W. Murray, we will say that we have repeatedly found that the cutting of the queen-cells when the colony is preparing to swarm has very little effect on them, for the reason that they start new ones, and, if crossed in their purpose, will even swarm with only eggs or young larvæ in the queen-cells newly built.

If we return the swarm 48 hours after swarming, the queen-cells have been destroyed by the young queen, and the bees get rid of her or of the old one when the swarm is returned, the swarming fever being usually over by that time. If the young queen is not yet hatched when the swarm is returned, the old queen usually goes about the work of destroying all queen-cells herself. We do not know but that it would be safest to destroy all queen-cells before returning the swarm; but this should be attended to only a few hours before the returning of the swarm or it will be done to no purpose, as the bees have eggs and larvæ at hand from which they can raise new queens without end.

Our aim has always been to take the shortest way of arriving at our purpose, and we will repeat that we have found out two things: 1. Destroying the queen-cells to prevent swarming will avail nothing unless the season proves also unfavorable to the swarming-fever, as the bees at once rebuild new ones in the place of those that we have destroyed; 2. After the colony has swarmed it is sufficient to return the swarm after two days, to insure the destruction of the cells or of the young hatched queen or of the old queen, at the bees' choice, except, perhaps, in isolated cases which are exceptions to the rule.

The objection which we have to the method mentioned by Mr. Murray, of destroying the queen-cells and returning the swarm at once, is, that the swarming-fever is not over then, and it often happens that the bees simply begin the work over at once by rebuilding new queen-cells, as we infer was the case with Mr. Murray, since he says, "Of course, this was likely to have to be repeated." If he will try keeping the swarm 48 hours, he will find much less need of repeating the operation, and will not need to remove the queen-cells, since it is always or nearly always done by the queen. If he has ascertained that the bees have a young queen already hatched, he can either destroy her or the old queen before returning the swarm.

Another objection that we have to destroying the queen-cells in any case is the difficulty of making sure of having found every one of them. As a matter of course, with a great deal of attention a bee-keeper can make sure of that; but it is hardly necessary to tell the reader, that during the swarming season a bee-keeper has his hands full, even if he does not run a farm and a bee-supply shop besides.

The words "swarming-fever" which we have used in the above are well known to practical bee-keepers. This term has been used by the old masters, and very fitly describes the condition of the bees when they make preparations for swarming. These remarks are not intended for old bee-keepers like yourself, friend Root, but for the many beginners who read these pages. When the bees have the swarming-fever, they have no rest till they succeed. We have divided a colony into three artificial swarms while they were making preparations for swarming, and each of these swarms sent forth another swarm. It is this excitement which makes all attempts at prevention so futile on the part of the bee-keeper, unless the weather becomes unfavorable. But when the colony has swarmed, this excitement promptly goes down unless they are still crowded and ill at ease, and for that reason the returning of the swarm is more likely to be successful, especially if the apiarist takes pains to give more room, more ventilation, and more shade, at this time. This rule is not infallible, but it is the best we have ever found in these circumstances.

Hamilton, Ill., June 20. DADANT & SON.

MORE CYCLOPEAN BEES.

MILLIPEDS, ETC.

Mr. G. A. Cussy, of Hilbert, Wis., sends me six one-eyed worker-bees. He rightly says, "They seem to me to be curiosities. Are such common? What is the cause? Please answer in GLEANINGS."

These bees are entirely like the ones received a few days since from N. Staininger, of Tipton, Iowa, and of which I wrote as follows in the *A. B. J.:* "A cyclopean bee. That does not mean a giant bee, nor even one that is extra large, but one with only one eye. The bee is in nowise peculiar, except in the one eye and the absence of ocelli, or simple eyes." These bees received to-day are like that one. They have one very hairy eye, exactly in front, and high up on the head. Back of the eye is the vertex, or upper part of the epicranium, which is about as wide as the eye, and also very hairy. The bees are well marked Italians, and I can see no deformity except the one named. They are curious monstrosities, and I should like to know whether all are from one hive, and whether they are good honey - gatherers. I presume some peculiarity of the queen results in this deformity. It would be interesting to raise queens from this queen, and see if her bees are the same. It might be possible to breed a race of one-eyed bees. I presume they would be no better, but, like five-toed chickens, they would be curious, and, if as good for business, would find a ready sale, if only for curiosity's sake.

Ag'l College, Mich., June 13. A. J. COOK.

[Friend Cook, if you had only one or even two of the bees described, it would be nothing more strange than the monstrosities we meet every little while. But it seems to me strange that there should be a whole half-dozen, and these all alike: and, besides, you have several bees entirely alike, from two different individuals, widely separated from each other. This seems to me something very strange, and it is unlike any thing in the way of monstrosities that has ever come under my observation.]

CLOSE OR WIDE SPACING OF BROOD-FRAMES.

THE NATURAL SPACING OF COMBS; UNEVENNESS OF COMB SURFACE.

After all the discussions on this subject, it seems not to be exhausted yet. The Keokuk convention had to talk it over, and still some things were, in my opinion, left untouched, or, at least, unfinished, that have an important bearing upon the matter. I judge by the report of proceedings, for I was not there. One important item was brought to light; namely, that in nature the spacing of combs is irregular, and that the closest spacing is in the center—in the brood-nest, the distance apart increasing with the distance from the brood-nest. That is just as I want it. An inch and three-eighths, it seems, is the natural spacing of brood-combs. I settled upon that as the proper spacing several years ago. If we are to have a brood-chamber for brood alone in the summer season, it would seem that 1⅜ is right, according to nature.

If expedient it may be a good thing to space the frames further apart for wintering, especially if wintered out of doors; but push them closer together in the spring. Mr. Clarke does not believe in crowding the frames together at any time. If he told why not, it does not appear in the proceedings. I do believe in it, and I will tell you why. Whenever the brood-chamber becomes crowded with brood and honey, as is sure to be the case when honey is coming in rapidly, as far as the frames are filled with honey there you will find but a bare bee-space between the combs. Bees never seal honey except in times of great dearth, and leave ⅝ or ½ inch space. And since nature is satisfied with ⅜ of an inch between brood-combs, why not put them that close together? It is claimed that bees will fill the frames more with brood and less with honey if thus closely spaced. While I think that it has that tendency I am not certain that close spacing *always* has that effect. But I am certain that the honey lost by lengthening and filling the cells might be profitably saved for surplus receptacles.

Frames spaced 1½ in. apart are generally no more easily manipulated than those closer together. True, there is more room between the partitions filled with brood. But unevenness of comb surface is one of the greatest of hindrances to the easy and rapid manipulation of frames. Where combs are thick this unevenness is all the greater, and makes the interchanging of frames all the more difficult. When inserting empty combs or hiving swarms on them I always shave them down even and thin, and space them closely for that reason. And, by the way, nothing promotes the building of uneven comb surfaces more than the interchanging of frames, and nothing better counteracts this tendency than close spacing. Now, perhaps some one rises here to say that nothing also so promotes the bridging of combs. I say, not a bit more than when placed 1½ in. apart.

When hiving on frames of foundation I would not place the frames further apart than 1⅜ inches. Further than that will give us thicker and less even combs. I generally hive on empty frames with starters, and in that case 1¼ in. is better. The combs will be less wavy, and less drone comb will be built.

PREMIUMS ON CANDIED HONEY.

Why should not fair associations offer premiums on candied honey—or, more properly, perhaps, why should not bee-keepers take the matter in hand and prevail upon them to do so? We have been for years telling one another to teach folks that the candying of honey is the best test of purity. Yes, and we have been trying to teach them, too, but still many do not know it or will not believe it. The work of education is incomplete. Let us go on in the work we have been doing, but let us not stop there. What better way to educate the public than by a good fair-exhibit? That is what fairs are for. Stockmen, poultrymen, inventors, manufacturers, horticulturists, bee-keepers—all look upon a fair as a place to make competitive exhibits of their wares—to advertise, to educate the people; to show them what they have to offer; to present the claims and test the qualities of their products. And fair associations look to stockmen, etc., to present their interests before them as well as at the fairs. Bee-keepers must do this or their claims will not be duly recognized. We bee-keepers have, of course, urged the claims of our industry more or less, but we have been derelict concerning the matter I mention. Let us see to it that no apiarian exhibit nor premium-list is complete in which candied honey does not occupy a prominent place. GEO. F. ROBBINS.

Mechanicsburg, Ill.

CLOSED-END FRAMES.

NOT PRACTICAL IN A CLOSE-FITTING BOX.

I have been very much interested in the discussions in GLEANINGS regarding closed-end frames, but quite a number of things are not very plain to me. First, I think the closed-end, as Elwood and Captain Hetherington use it, is a long way ahead of either hanging or Hoffman frames; but when we come to use it in a hive-body of limited capacity, do we not lose some of its most valuable features? If we have no case we can get the frames apart a great deal faster and easier; and then another reason is, that, with a strong colony in the month of May, eight frames are hardly sufficient. Every year I have been obliged to give more room above or take away brood, and this I do not like to do, for it weakens the colony when the honey-flow comes; still, if I do not they are sure to swarm when the first honey comes from apple-blossoms. Would it not be better to have a hive in which you can use from ten to twelve frames, and then remove all but your regular number at the beginning of the honey-flow, giving them to weaker colonies? Now, why do you have such a wretched-looking cover or cap on the Quinby hive? Why not use simply a crate and dovetailed cover, the same as any hive?

We are having the worst drouth we have had in 30 years—no rain to speak of since April 15. Every thing is all burned up. We do not expect any honey from white clover, as there is very little left. It is very discouraging. Prospects never were better for a large yield until the drouth came.

I wish you could see my strawberries. They were set May 1st, right in the dry weather; but they were strong plants, and came from M. Crawford. I put on coarse manure at the rate of 80 loads (all two large horses could draw) per acre. It makes a first-class mulch, and all the plants on such ground are growing nicely in spite of the dry weather, while a few that I tried on ground without manure all died.

LESTER JUDSON.

East Sidney, N. Y., June 15.

[You are right. We have come to the conclusion that a closed-end frame in a tight-fitting or closely fitting case or hive is not a practical success, and so we are going to take that frame out of our price list. They may answer for a shallow frame like the Heddon, but will hardly do in a deep one. We do not make the Quinby hive. You will have to talk to those who use it, in regard to the cover.] E. R.

[A mulch of coarse manure is certainly a splendid thing, not only for strawberries, but for currants, raspberries, and blackberries. Where you can get it for a dollar a load or less, I believe it is the best and cheapest way to manage these fruits. If the weeds come up through the manure they must be pulled out as fast as they make their appearance.] A. I. R.

GETTING DILATORY AND BAD MEN TO PAY UP.

WHAT OUR BEE-JOURNALS CAN DO IN THE MATTER.

The kind word below suggests the title to this article:

Friend Root:—I received to-day a letter from———. with remittance to balance account. Bankers and attorneys could do nothing with him; but a word from you brought him to account. If you are not a popular man, there never was one. Inclosed find a dollar for your trouble. SETH WINQUIST.
Russellville, Oregon, June 4.

My good friend W., we are very glad indeed that we were able to assist you in getting your pay; but we wish you and all others to distinctly understand that we are not in the *business* of collecting bad debts—at least, we do not take *pay* for what collecting we do, therefore we place the $1.00 to your credit, thanking you all the same. I may explain to our readers, that the man alluded to ordered several dollars' worth of the Oregon Everbearing strawberry-plants, but he would neither pay for them nor make any reply. We wrote him, and finally succeeded in getting an answer. What do you suppose his excuse was for not paying for the goods he ordered? As a fair sample of the way in which people try to excuse themselves under similar circumstances, we give that part of it here, of course omitting the name:

Mr. Root:—After receiving the plants I made up my mind that they were either the old Mexican Everbearing renamed, or seedlings from it. I now think them the Mexican renamed. If you can find any party who has tried them, and will give you one *good* point in their favor, I will submit.

Now, even though it be true that the Everbearing strawberry is of little use or no use here in Ohio, our friend certainly did *not* know such to be the case when he received the plants, any more than when he ordered them. When we order new and untried things, and receive them in good order, of course we should pay the bill. If the amount we invest is considerable, and the goods prove a failure, it were no more than fair to ask the introducer for a rebate. If he grants it, well and good; if not, well and good. Very likely our bee-journals may accomplish many things that bankers and attorneys can not do; for if a man has a spark of honor left, he will keep his name out of the papers. If friend W. were to see the letters we frequently get, from those whom we have succeeded in bringing to time, he would decide that we are, at least with some people, most decidedly *unpopular*.

FRIEND TERRY GIVES US A LITTLE SERMON.

HE ALSO TELLS US WHERE TO BUY OUR PLANTS.

My Dear Mr. Root:—I want to say a little more about the souls of great corporations *vs.* those of individuals. I suppose most bee-keepers have homes, and are interested in making their grounds beautiful. So far as I have noticed, they are more interested in this direction than we common farmers. You will remember that, last fall, a landscape gardener wanted to fix up your grounds and mine; also that we both decided to do the work for ourselves. We had the general outline and foundation laid, with a few beautiful evergreens, shrubs, trees, vines, etc., that we had scrimped ourselves to buy, years back when money was scarce. Last year we felt that we were in shape financially to spend quite a little in beautifying our home surroundings. We could afford to hire more help, if necessary, to take care of things. We all love flowers and shrubs and climbing vines, however, and are willing to work a little extra to take good care of them. It isn't work, though, but recreation.

Well, instead of hiring our horticultural friend at a large price to arrange things for us, and furnish them, and set them out, we spent some days at odd times in studying over where flower-beds would look best, and where shrubs, and what would be best for this position and what for that. Then I drew a rough plan of the grounds, with the beds, etc., located, and the height of plants or shrubs that we should prefer in each place—that is, the height when they had attained their growth. That was as far as we could go, certainly, as it was hard to decide on every thing from catalogue descriptions. With this plan I went to a large nursery, and at the office they kindly placed a pleasant young man at my disposal, who told me all about every tree, shrub, or plant, and advised about which would do best or look best in certain locations. In half a day we picked out 171 shrubs, plants, and bulbs, and I learned briefly any thing that it was necessary to know about setting them out, and after-culture. While picking out the plants the price was never asked of a single thing. I wanted the best that I could get, and was willing to pay for it. But when I went to the office with the list, and they handed me the bill, I was greatly surprised. It was for $21.30 only, and in the list were four grafted rhododendrons, and the same number of azaleas, which are high-priced plants. Not one word was said about price. They charged me regular rates, that any one buying as largely could get, and would get without the asking.

"But," you ask, "have you forgotten the text you started out with?" Not at all. I have just got around to it. While I was in that office a woman came in, an agent, not employed by the firm, but one who buys and sells, or, rather, sells and then buys. She had just got her order filled, and it was somewhat larger than mine. Had she paid her bill and kept her own counsel, the cloven foot would have remained hidden. But she had been figuring up what she was to receive for the stuff, and, I was going to say, woman-like, she couldn't resist the temptation to show how smart she was, and so she held her memorandum-book over to the book-keeper who was waiting on her, and said, "There is what that bill of goods brings me." It was about $127.

He said: "I congratulate you, madam;" and, being a Christian gentleman, as I should judge, I do not see how he kept from saying, "But how about the people who have trusted you, and whom you are cheating so outrageously?" After this woman had gone out (I can not call her a lady, although she was well dressed), a member of the firm said to me, "Those cost her just about the $27. Why will people pay such prices instead of dealing directly with the nurseries?" Now, which soul looks the whiter—that of this great and wealthy corporation, that employs an army of men, and by fair dealing and doing a great business on a small margin of profit has grown to vast proportions, or that of this individual, quite poor, perhaps, who was taking a mean advantage of the ignorance of others? I am *so* sorry it was a woman! But I am reporting facts.

Now a more pleasant theme. You will remember our landscape gardener (a *man* this time, not a woman) excused himself partly for the exorbitant price put on his work, by saying that many of the plants would die, and have to be replaced. Well, with careless treatment I presume they would. But I have to report that every one of the 171 we set out, green at the business as we were, is growing nicely. This shows again that the great corporation had a soul. The plants came in perfect condition. I will tell you just what we did to insure their growing. Where a shrub was to be set we cut a circular hole a foot deep and four feet across, in the turf, and drew away the dirt and drew back choice soil from the richest part of our clover-field that we were just about to plow for potatoes. With a sharp spade we shaved off the clover-plants and took the soil with clover-roots in it. We took out a strip, say two feet wide, and then left two feet so as not to spoil the soil in the field. The dirt brought from the lawns was put into the holes in the clover-lot. Flower-beds were dug out, and filled with clover soil in the same way. We did this early in the spring when we were not busy. Then, after carefully setting, we have kept the surface constantly mellow by using a potato-hook, such as was formerly used for digging potatoes. Wife and I delight to do this. No manure was used. My! how things do grow with such care! Of course, out of this long list there will be some things we shall discard after trial. We will keep what pleases us best and does best on our soil. A bed of helianthus multiflorus plenus is a delight to me just now, from their luxuriant growth. I look at them more times a day than I do the potato-field, and that is saying a good deal. By the way, friend Root, have you any rhododendrons? If not, you must get a few. I never in my life saw flowers that seemed so perfectly exquisite as our pink and crimson and lilac colored rhododendrons. The girls thought every thing of the white one; but they did not seem so perfectly lovely to me as the other colors. We tried to use, so far as possible, shrubs and hardy perennial plants to ornament our grounds, so as to save the expense and trouble of fussing with many annuals. We should like them too; but we are farmers, and can not spare a great deal of time for such work, and want to make all that is possible out of what time we can put in.

Hudson, O., June 20. T. B. Terry.

[Friend Terry, I want to say, "May the Lord be praised for putting it into your heart to write the above at just this crisis." The sad part of the story is what you tell us about that woman who is agent. But it only illustrates the way in which the greater part of agents, both men and women, get their pay for traveling from house to house, and taking orders. Perhaps this woman, if she could see this article, might excuse herself on the ground of "traveling expenses." If she delivers her plants she must make two trips to every home. But even if this be true, I think it is a tremendous argument in favor of going to the nearest nursery yourself and picking out what you want. A very good friend of mine—in fact, it is none other than the father of W. J. Green, of the Ohio Experiment Station, Columbus—has a beautiful nursery right in our own county; and I have heard him lament, again and again, that people living comparatively near his nursery would persist in paying traveling agents three or four times the proper price for certain things, and then get poor stock besides. Worse still, they are persuaded into buying something that is totally unfit for their locality; whereas, if they had gone to the nurseryman he could have given them intelligent advice in the matter, and would not, under any circumstances, have urged them to take something which he knew would disappoint them. You may say, all nursery men are not like those mentioned by Mr. Terry. My friend, I believe that those who build up a great business are, as a rule, conscientious and honest. The real cheats are those who travel about without name, home, or reputation.

I felt like smiling when you told about going to the clover-field for good soil. I have thought of doing the same thing, but I could hardly bear to spoil my nice fields by "robbing Peter to pay Paul," if that is a fair illustration. We make our stuff grow by mulching the ground with manure, or by digging manure into the ground; and this process will in time make nice soil for any kind of plants, if you work in manure enough.

The first rhododendron that I ever saw came from one of the great nurseries. It was shipped in full bloom; and when I unpacked it and stood it up I could think of nothing but the king as he stood in mute astonishment when Cleopatra was unrolled and placed on her feet before him. Our folks here have good reason to know, I think, about rhododendrons and azaleas. Some years ago, when I saw a beautiful plant in full bloom in the window of a florist in Utica, N. Y., right in the depth of winter, I fell in love with it to such an extent that I carried it to our bee-keepers' convention, where it graced the table right by the president, until the close of the meeting. Then I brought it all the way home, and displayed it triumphantly in the office, just before noon service; and then we kept it in our home for more than two weeks, where it was a thing of beauty and a joy for—a good many days. Advising people to go to plant-dealers near their own homes would cut off our own business in sending plants by mail and express, I am aware. But, never mind if it does. If somebody near your home makes a business of raising plants, by all means go and get them of your neighbor, and thus encourage home industry; and finally, dear friends, please remember that all great firms and corporations have *probably* earned their money by honest industry rather than by fraud and cheating; for if they were frauds and cheats they *could not, in the nature of things*, have built up a great business.]

NUBBINS.

A GOOD REPORT FROM BEE-ESCAPES.

The bee-escapes are genuine seed corn, filled to the tip. They succeed with us, and are regarded as invaluable, both in extracting and removing comb honey. Three cheers for Mr. Reese.

The nubbin is ahead of the "stray straw." We make Doolittle's cups work. Come up, doctor, and learn how. We will feed you on strawberry shortcake.

It is too bad that that little "stray straw" of an editorial "we" rests so ill in the doctor's intellectual stomach. Of course, all good customs are based on some reason. If I say "we" it is a general expression, and the sentence or thought containing it represents the paper. I say "I," and it means me—my own personal property. How better make this important distinction?

ANALYZING SAMPLES OF HONEY TAKEN FROM OUR MARKETS, BY OUR BEST GOVERNMENT CHEMISTS.

The Chemical Department at Washington is having 50 samples of honey secured on the markets analyzed by several of our best chemists—Prof. Scovell, of Kentucky, among the others. This is wise and good. Whether this will be satisfactory remains to be seen. If not, it all helps. Prof. Scovell tells me that he finds dextrine in several, and he does not suppose dextrine could ever be found in genuine honey. This is a full ear, no nubbin. I hope this result will give us many. I look eagerly for the full report. A. J. COOK.

Agricultural College, Mich.

WHY THE BEES MAKE CELLS HEXAGONAL.

A DAY-DREAM.

I had read a good deal about the reasons why hexagonal cells are best, and had seen that difficult mathematical demonstrations had been used in connection therewith. I wondered whether all that was necessary, and thought of it off and on for a long time. One hot day I sat by a hive in which a swarm had just been housed, and the steady humming of the bees all around me gave me a sort of drowsy feeling. I said to myself, "How do those bees know how to start cells? They have worked more or less in them, and perhaps done some repairing, but they have no knowledge or experience at actually starting cells, for all the cells in the old hive were started long before they were born."

Just then—was it imagination, dreaming, or what?—I heard one of the bees in the hive saying, "There, we've quite a lot of wax plastered around; let's put it in shape."

"What shape?" said a pert young miss.

"What shape should it be, but the shape cells always are—six-sided?" was the reply.

"Oh! that's *so* old-fashioned," said the young one; "I'm tired of those everlasting six sides."

"Say!" spoke up a very eager young voice, let's make them five-sided. There's very little less in five than six, and it will be quite stylish to have something different from our neighbors."

"Something different! I guess you would have something different," said a bee with ragged wings. "And you'd have something different in the way of work, for it would take ten times as much wax, and we wouldn't get our combs built all summer, and basswood coming on, they say, in a week or two. Oh, yes! It *would* be something different."

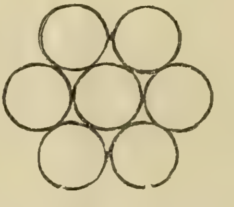
"No," said another bee with an experienced look, "leave that sort of thing for those human butterflies who are never happy unless they can put their hair up in a different way every day"—here she gave a little push at her back hair to see if it was all smooth and straight. "We folks have no time for any such foolishness. We must take the plan that will need the least wax and take up the least room."

"Yes, business is business," said another; "but is there no chance for improvement? This is an age of progress, and it isn't clear to my mind that something else may not be just as economical as six sides. You know we heard of some bees up in Canada making cells with four sides. Why should they make them so if they didn't think it would be an improvement?"

"Just because they're like you, old Cranky," snapped out a nervous-looking bee.

But the bee with the experienced look appeared very thoughtful, and, in a half-meditative manner, said, as if slowly talking to herself, "I'm not sure but I know a plan whereby we may find out a better way if there is one, or else confirm the opinion that six sides is best."

Then rousing herself, as if from a reverie, she said, in a very business-like manner, "Here, some of you youngsters, roll up a number of balls of wax, perfectly round." And as they went to work on the balls which they very soon had finished, she went on to explain, "You see, the cells are to accommodate the babies, which are round—that is, I don't mean they are round like a ball, but round like a straw, and then round like a ball at each end. Now, if we can find how to place together a number of wax balls so as to have them the closest together possible—that is, with the least waste space between them—then we'll know just how to make our cells."



Then she placed one of the balls on the floor of the hive and said, "Now I want to put this ball just as close to the next one as possible. You see that it makes no difference which side I put it; so long as it touches, they are the same distance apart from center to center; for every point of the surface is at the same distance from the center. So we'll put it at this side. Now I want to put a third ball as near as I can to these two. As we found before, we can not get two balls any nearer together than to touch; and if this ball touches the others, that's as near as they can be got together. So we'll place it here."

A low hum of approval ran through the throng, and the one they called Cranky looked somewhat fidgety.

Then old experience continued, "Now for a fourth one. Just as before, we can't do any better than to have it touch two of the balls, for, you see, put it where I will, I can't get it to touch more than two balls, so I'll put it here, touching the first and third."

At this point Cranky interrupted, saying, with eagerness, “ But, if you please, it's different with four than with three. Can't you get four closer together by putting them in a square, that is, four together? You see, it gives only one space between, instead of two, as you have it.”

“ Yes, but the one space is bigger than the other two put together, smarty,” said the pert miss, and she fanned Cranky with her left wing in a rather tantalizing manner.

“ That's easily said,” said Experience; “ but how do you know it is so? Can you prove it?”

“ No, but it looks so,” said the pert miss, somewhat crestfallen.

“ Looks are often very deceiving,” was the reply. “ Let us see if we can't determine which four take up the most room. You see that the two measure just the same from right to left, for what the first ones gain at one end by being slanting, they lose at the other. Measuring the other way, you will see plainly that they measure the least; so, placing them square doesn't gain any thing, but loses.”

“ Of course,” said the pert miss, looking very much reassured.

“ I think, then,” continued her elder sister, “ that we may consider it settled that there is no better way, and we may continue indefinitely adding to the number, only taking care that, as each one is added, it shall touch two adjacent balls. The next question is, How shall this space between the balls, or the cells, if you please, be filled up?”

“ Oh! just fill it all up with wax, and leave the cells round. That will be *so* sweet,” said the same giddy miss that wanted five-sided cells.

“ Yes, it would be wondrously sweet to make all that extra wax,” said another.

“ Well, then,” said the giddy miss, “ just make the cells round, and leave the spaces filled with air.”

“ That,” said another, “ would still take more wax than a single wall; and, besides, think what a comfortable hiding-place that space would be for youug worms.”

“ You are leaving out of account something still more important,” said Experience. “ A perfectly round cell, entirely filled up with the baby-bee, would have no place left for air to get in for it to breathe, unless it should be trained to breathe like a human baby, through its mouth, and you know that all well-regulated baby-bees have their breathing-places on their sides. To get at what will take the least wax, just start at the middle point of the space, and build a straight wall to the three points where the balls touch. In other words, make a line tangent to the two balls at their point of contact.”

“ Why, that brings us right back to the hateful old six-sided cells,” said the giddy miss.

“ Exactly so,” said Experience. “ We now have remaining the problem how best to make the septum. Just fasten together in a flat slab eight or ten balls, and then a second slab of them in the same way. Now place one slab on the other, so they will sit, each ball exactly on the other. You see that you could not make the two take up any more room unless you raise the upper slab so it doesn't touch the lower slab at all. Now push the upper slab along a little, and you see it slides down of its own accord till each of the upper balls rests exactly over the center of the space below. It is evident that there can be no way in which it can be placed to sink any lower, or, in other words, to take up less room. We are confronted again with much the same condition as we had before, a condition in which it will take a great deal of wax to fill in between; and it is clear that there is no better way to meet the difficulty than to do much as we did before, and make a little wall tangent to the two balls at each point where the two come in contact. You see that makes three such walls at the bottom of each cell, for each ball touches three of the balls in the other slab.”

“ Just then the queen came around and said, “ What are you about there any way? Do you want me to cover the bottom-board with eggs while you're fooling there?”

“ That's so; we are fooling, and that's a fact,” said one of the workers who had been listening to the explanations very attentively. “ Come on, and let's make up for lost time. Say, girls, this is a better hive than the old one. Do you see the end-bars fit close together, and you remember how the cold air came in between the end-bars last winter? What's that old fool dreaming about, sitting out there by the hive, anyhow?” C. C. MILLER.

Marengo, Ill., June, 1891.

A VISIT TO L. E. MERCER.

CALIFORNIA YIELDS.

A short time since, after a ride of 37 miles, I found myself at Castac, this State, where the Santa Clara River begins flowing on through the famous valley of like name, in Ventura County, to the ocean. On alighting from the train I found Mr. L. E. Mercer, of Ventura, awaiting me.

A drive of four miles up Castac Valley, then half a mile up one of the numerous picturesque canyons, brought us to Mr. Mercer's mountain home and location of his home apiary, the foundation of which at one time composed the greater portion of Mr. Wilkins' famous Sespe apiary, which Mr. Mercer bought, moving it to its present location. As a matter of interest to your readers, I will give a few details of California bee-keeping, with Mr. Mercer as the subject.

Mr. L. E. Mercer's bee-keeping experience began in 1871, at Orion, Ill. He came here in 1883, locating at Ventura. The whole family, composed of Mr. and Mrs. Mercer, and four energetic sons, are all practical bee-keepers (the new daughter-in-law being the only exception), as the following record of the past seven years is conclusive.

Product of	1884............	40,000 lbs.
“ “	1885............	A failure
“ “	1886............	24,000 “
“ “	1887............	A failure
“ “	1888............	30,000 “
“ “	1889............	42,000 “
“ “	1890............	68,000 “

The greater portion was extracted honey. Last year's report includes 14,000 lbs. of comb honey. He has received an average price of 5 cents for extracted. He prefers the L. frame for extracting; for comb honey, a 16½x6¼ frame, suitable for the T super. He has tested the Hoffman and many others, but considers the ordinary hanging frame, for this section, preferable to any other. His honey-house for extracting is a model of ingenuity, and is so arranged that the cases containing the combs are run in on rollers to the uncapping-can, adjoining which is a large six-frame reversible extractor, to the left of which is another set of rollers which carry the combs out again as fast as they are taken from the extractor. The honey from the latter runs into a three-inch pipe, about 200 feet long, emptying into a twelve-ton receiving-tank; besides which he has several of the following capacity: Two of 7 tons each; three of 3 tons each; one of 2 tons, and two of 1 ton each. Capacity for storing, 39 tons. He has used 800 pounds of foundation thus far this season. He manufactures his brood foundation on a Given press, and thin foundation on A. I. Root's six-inch mill. He supplies the greater portion of Ventura Co. with foundation. He thinks wiring frames unnecessary labor; and as evidence of this he stated he had 800 combs on foundation drawn out during last season's honey-flow that were not wired, and only two broke down, extracting twice from the 800. In former years he was a firm believer in wiring, using the bent wire nail ten years ago.

His home apiary contains 550 colonies; first out-apiary, 300 colonies; second out-apiary, 200 colonies; son Edward's, 200.

Within a radius of five miles of the home apiary there are nearly 5000 colonies, so one can surmise that the hills and mountains must supply some forage for such an army. The fact is, the greater portion of that mountainous section is adapted for nothing else; and when we consider the amount of nectar distilled by dame Nature in this Eden of the honey-bee, it is not surprising to hear of the enormous yields of honey in what is yet the infancy of the honey industry of California. There is much to be said of bee-keeping on this coast, but time and space forbid.

In 1893 California's apicultural display at the World's Fair will rank second to none; and, with this end in view, our prospective representatives are now being considered. Mr. Mercer has the indorsement of a large circle of bee-keepers; and the indorsement of his own county adds testimony to his worth; so I voice the sentiment of not a few for Mr. L. E. Mercer as California's representative of the honey industry at the World's Fair in 1893.

GEO. W. BRODBECK.

Los Angeles, Cal., June 17.

[Friend B., we are greatly obliged to you indeed for the bird's-eye view you give of friend Mercer's work during the past six or eight years. I shall ever have cause to remember him and his good wife—in fact, all the family—for the pains they took in giving me glimpses of the thousand and one wonderful things connected with those mountain bee-ranches and wild canyons. The very mention of them makes my heart thrill again. I second your suggestion, that friend Mercer be invited to represent California in 1893.] A. I. R.

CHEAP HONEY.

LOWER COST OF PRODUCTION.

One of your correspondents, Mr. A. F. Brown, page 459, makes a point which is indeed a "gem," in that it carries an immense amount of weight with it. He says, "Give me a hive having frames at fixed distances, with a plain zinc queen-excluder, these escapes (bee-escapes), and a good reversible extractor, and I will show you how to produce honey at less than half the cost nowadays." He probably means at half the cost it could be produced eight or ten years ago, and he is undoubtedly correct. I have noticed in all the bee-papers, from time to time, some one always had some scheme elaborately written, which, if followed up, would increase the price of honey (?). Of course, if producers of any commodity can keep the price up on an article, it is to their interest to do it; but, on the other hand, how can it be done if it is to be sold readily? For instance, put nice comb honey up to 25 cents a pound, and I warrant you will find it a slow seller; but put it down to 15 or 16 cents, and it will move right speedily. Why? Because it is in reach of everybody. How can a laboring man, earning, say, nine or ten dollars per week, afford to eat honey at 25 cents a pound, or even at 20? With him it must ever remain the sternest of luxuries. They tell us there is about 12 pounds of honey in a gallon; and 12 times 20 cents is $2.40. How does that compare with the price of maple syrup?

Mr. Brown is correct in his idea that bee-keepers should aim to produce their honey cheaper. It can be done, or, rather, it *should* be done. Look over the prices of hives in A. I. Root's price list, or any other house that does a large business, and note how much cheaper every thing is in the hive line to what it was six or seven years ago. Those who have price lists that old, just look them over; then get the latest edition, and compare prices. Yes, sir, Mr. Bee-keeper, you have got to set your wits to work, and produce your honey cheaper; and why not? The bees charge you nothing for gathering. All it costs is to produce, or, in other words, to *assist* the bees in getting it into marketable shape. Now, it must become bee-keepers (if they wish to keep up in the race of human progress) to keep their eyes open, to grasp every thing that practically suggests a short cut over former methods. Your grocer will be much more willing to handle your honey at as low a price as it is possible to name than he will to have you "tuck" it on; for high prices on any thing greatly hinder its rapid conversion into money, and that is one thing which will make honey a much-used commodity, because all dealers, from producer to commission man, jobber, and retailer, delight in a quick-selling article at a fair profit.

Again, the grocers in your own town, if it is a town of any size, can sell, without doubt, twice the amount they do if it is properly exposed. Pile up a nice imposing lot so it will look large and nice; put up the price on a tag; never mind about a glass case. Leave it entirely open. Never mind the dust; take ordinary care of it, and you will sell the whole pile out before the dust has a chance to settle on it.

Olean, N. Y., June 17. GEO. SHIBER.

[While we should, by every means possible, cheapen the cost of *production*, we ought not to be in too great haste to reduce its selling price. If comb honey is held at, for example, 25 cents per pound at retail, and it sells slowly if at all, it is evident the price is too high. Of course, honey will sell faster if lower in price; but—how much faster? Competition, and the flooding of certain markets, will bring down the *selling* price of honey fast enough, and I think we as bee-keepers should be cautious about *helping* the price down.] E. R.

COBS.

Friend R.:—I am not so arrogant as to try to pass the following as nubbins—only as cobs of the nubbins; and if you should find a kernel here or there, you are at liberty to pick them out.

The shallow half-story frame for extracting has the advantage of being uncapped easier, containing more ripe honey; admits of being handled in supers to better advantage; bees will enter the half-story quicker. My bees ripen honey better than I can possibly do it. I extract after sealing.

The season of 1890 was exceedingly poor for this location; the average number of pounds stored was 18.

One pure Italian colony stored 90 lbs. in sections—the first time in 16 years that an Italian has outstripped my blacks. The above colony had been formed in early spring, of three dwindled stocks, all three not making more than half a good colony.

The escape is a great help, both for raising comb and extracted honey. All the different styles of escapes have worked well with me, on an average.

K. P. Kidder, in his "Secrets of Bee-keeping," 1868, says that Langstroth did not invent the movable frame—only made it more movable by adding bee-spaces between and around the frames. We have given Mr. L. the praise for years for having given us the readily movable frame; but now we are going back, doing away with bee-spaces, etc. Isn't it queer?

Doolittle says: "Size of queen-cell indicates quality of queen." Dzierzon and Vogel agree that the size of the cell has nothing to do with the quality of the queen. They assert, that the smallest cell allows the development of a large queen—amount of proper food being the only governing factor.

In the following I may disagree with many of our authorities; but I find ready sale for dark honey in the comb; no sale for dark extracted, and I find it advisable to run my bees for extracted honey in the early part of the season. After clover and basswood are past, I use section cases. By following the method above I gain two points: 1. I harvest a salable article; 2. I get the brood-chamber well stocked up with dark honey, which is fully equal to basswood and clover for winter food if sealed. I have never been able to get a sufficient amount of honey for winter use stored in the brood-combs when running for extracted honey, except by feeding after the harvest, or by taking the supers off before the close.

Feeding for winter stores, I dislike. I do not want to meddle with my bees after the honey season is over. Give me chaff hives, or one packed with almost any material—moss, planer shavings, sawdust, cork, hair, etc., for outdoor wintering; light single-walled hives for cellar wintering; closed-end frames for out-apiaries.

Naples, N. Y., June 22. F. Greiner.

HONEY-DEW AND THE APHIDES IN 1891.

SOMETHING FROM PROF. COOK.

Prof. A. J. Cook:—The trees here are covered with a sort of plant-louse, a sample of which I send you by mail to-day. The bees are simply swarming on it. Is it the aphis that gives the so-called honey-dew? The honey is any thing but nice. Would it do to extract and feed to bees for winter? Randolph Cuyler.

Alexandria, Va., June 20.

[Prof. Cook replies:]

The insects sent by Mr. C. were so broken that I could make out only by their wings that they were plant-lice, or aphides. These insects are very common this year, the country over. I have lived in this place twenty-five years, and I never saw so many before. Plum-trees, cherry-trees, linden-trees, and many others, are literally covered with these little pests. On the plum they first caused the leaves to roll, and now they have migrated to the stems of the fruit, which are often invisible, so fairly shingled are they with these green plant-lice. Not only in Virginia, but here and elsewhere, the bees have secured much honey-dew from these aphides. Our plum, cherry, and other trees have been roaring with the hum of the bees for days. Now the evergreens, especially the arbor-vitæ and our oaks, are infested with a scale or bark louse. These are large, brown, and plump. These also secrete nectar, and are humming with the noise of bees, even before four o'clock in the morning. The leaves are fairly coated with sugar secreted by the scale-lice. Of course, it is evident that, if this nectar gives strong rank honey, it is a calamity. We are going to test it often, and so know just the effect. We now have a great area of clover bloom, and I hope this will counteract the rank flavor that may come from the honey-dew. It behooves all to be most watchful this year, that they do not get a quantity of unsalable sweet mixed with their honey. I hope the season will have no such evil in store for us; but to be forewarned may be to be forearmed. Let us watch, so that, if the evil does come, we may make it the least possible. A. J. Cook.

Agricultural College, Mich.

THE UNITED STATES HONEY-PRODUCERS' EXCHANGE.

A REPORT UP TO JUNE 22, 1891.

The season so far (in most localities) has been more favorable for bees than last year, and they are generally reported to be in much better condition. The per cent of increase averages 5 greater than last year at this time, although in a few States the season is reported to be two or three weeks later than usual. In most of the States the reports seem to indicate that the prospect still continues good for a fine crop of honey; and all that is lacking is the right weather for the secretion of nectar during the coming month.

The following are the questions sent out to the respondents corresponding to the tabulated replies below:

1. What per cent more of good honey-gathering colonies are there in your section than last year at this date?
2. Per cent of increase up to date?
3. Per cent of an average crop of white honey gathered up to date?
4. How does this compare with last year, same date?

In column No. 2. under Qu. 1, the dash before a number indicates *less* than last year, 1890.

The tabulated answers correspond to the questions by numbers above, and are as follows:

STATE.	Qu. 1.	Qu. 2	Qu. 3	Question 4.
Alabama	—5	50	90	Very much better.
Arizona	10	5	25	About the same.
Arkansas	20	25	25	Some better.
California	10	15		Two to four weeks later.
Connecticut				
Colorado	15	2		About the same.
Georgia	—25	30	95	About double 1890 crop.
Idaho	50	60	100	Much better.
Iowa	—10	2		About the same.
Indiana	—5	10		About the same.
Indian Territory				
Illinois	—10	5		Prospect rather better.
Kansas	20	12		Season wet, backward.
Kentucky	25	15	50	About the same.
Louisiana	15	60	75	Much better.
Maine	—60	5	2	Not as good
Massachusetts	—50	10	15	Same, but fewer bees.
Maryland	15	20	50	Much better.
Michigan	—10	2		About the same.
Minnesota	—5			About the same.
Mississippi				
Missouri	—10	12	15	Same, season later.
Nebraska	5	10		About the same.
Nevada	25	25		About the same.
New Hampshire	5	2		About the same.
New Jersey	15	10	100	Much better.
New York	10	20	5	About the same.
North Carolina	5	15	25	Little better.
Ohio	10	25	30	Much better.
Pennsylvania	—5	15	5	Little better.
Rhode Island	25	50	10	Better.
South Carolina	20	60	100	Much better.
Tennessee	10	25	90	Much better.
Texas	25	50	25	Some better.
Vermont	—10	5		About the same.
Virginia	—15	10	25	Late; about the same.
West Virginia	10	22	40	Much better.
Washington	25	15	25	About the same.
Wisconsin	—15	3		Dry; compares well.

P. H. Elwood, Pres.
G. H. Knickerbocker, Sec.

HONEY—PURE NECTAR.

SHALL THE BEE-KEEPERS' UNION PROSECUTE ADULTERATORS? GENERAL MANAGER NEWMAN SETS FORTH THE SITUATION.

As there has been considerable said of late in regard to the Bee-keepers' Union prosecuting adulterators of honey, we thought that we could do no better than to copy the article entire, from General Manager Newman, on the subject:

The last issue of the *Bee-keepers' Review* has "Adulteration of Honey" as its special topic. It is quite exhaustively treated. There are some things, however, which we wish to comment upon, and we will here give the gist of the arguments.

Byron Walker starts out by saying that "the Bee-keepers' Union ought to prosecute adulterators." On page 119 he adds: "What we need is a Bee-keepers' Union of at least 5000 members; then we can compel these corporations to respect the laws enacted for our protection."

This is a proposition upon which we must entirely disagree with Mr. Walker. The National Bee-keepers' Union was not created for such a purpose. It was constituted simply for "defense," and not to wage an aggressive warfare against adulteration, or any other moral or social evil!

Remarking on this subject, the editor of the *Review*, on page 128, says:

"As I understand, a change in the constitution of the Union would be necessary before money could be used for this purpose; but, if the Union *could* put an end to what adulteration there is, and, what is of far more importance, *convince the public* of this accomplishment, I believe its usefulness would be increased a thousand fold."

Brother Hutchinson is quite right—a *change* in the constitution would be necessary before it could undertake any such superhuman task. More than that, it must also *change* its executive officer. The present General Manager could not consent to undertake any such impracticability.

While, perhaps, it should not be publicly admitted, it is nevertheless a *fact*, that there is no sure "method by which the adulteration of honey can be detected."

Pure honey has very *often* been analyzed and pronounced adulterated by chemists in New Jersey, Ohio, Illinois, and other States; and even the United States chemist has *blundered* in many ways when endeavoring to enlighten the public on the matter of honey-adulteration. Samples which we *know* were genuine, have been branded as either "adulterated," or "probably adulterated"—simply because there is no reliable test for such analysis.

Honey varies so much in its component parts that no analysis of it can be reliable. That from the hillsides varies in color from that in the valleys. Atmospheric conditions, soil, and climate, even change the color as well as the body, flavor, and ingredients.

In view of these facts, it would be a wild-goose chase to start the Union after adulterators—especially if there are as many as Byron Walker avers—several hundreds of retailers of such stuff in a city no larger than Detroit. The Union is in better business, and should never leave that in order to delve into the slums of abominable sophistications.

Let us build on the other wall. Produce honey of such fine flavor, put up in such admirable condition for market, and properly labeled with the producer's name and address, that a *demand* will be created for that honey, and the guarantee for purity shall be the name of the apiarist, and not "a trade-mark," or the indorsement of any society or periodical.

There are plenty of laws on the statute-books in Michigan and other States, and the local bee-keepers can attend to the matter of prosecution without the aid of the Union. Let them follow the example of Harmon Smith, at Ionia, Mich., as is shown on page 129 of the *Review*, in the following words:

"Upon learning that a can of adulterated honey had been sent to a grocer of his town, he went to him and said, 'The first pound of that stuff you sell, I'll prosecute you.' The 'stuff' went back to the mixer.

"There was no blow nor bluster—no publishing of the matter in the papers. It was a case of 'silent influence.'"

If such is done promptly, we shall soon hear no more about adulterated honey.

Prof. A. J. Cook very wisely remarks, on page 124:

"Thus let us spread the information that honey stamped with the name and locality of the producer is sure to be pure. Such knowledge will help, not hinder our sales.

"Again, if we have not laws against such adulteration and fraud—Michigan has a good law—let us have them. Let us see that any man who sells any product under a wrong name is rendering himself liable to fine and imprisonment. If he stamps his product 'glucose and honey,' or 'manufactured honey,' no one will be wronged, and he is welcome to his profits."

Then he adds these paragraphs, to the first of which we have previously made exceptions:

"Having a good law, let us set the law to work through the Union, to stop the nefarious business. We had a good chance in Detroit last winter. I would have the Union employ a good lawyer, and have the matter pushed to the bitter end. A few convictions would not only stop the frauds, but would educate the people to the truth that only pure honey could be sold as such.

"The Union, through its able manager, has done right royal service already. There is here a grand opportunity to win even brighter laurels, and to confer, as I believe, a greater benefit upon the bee-keeping industry."

That "trade-mark" foolishness gets a black eye from George K. Weller, on page 122 of the *Bee-keepers' Review*, in these words:

"The proposed 'trade-mark' remedy would only advertise the evil gratuitously; and unless a standard of excellence were agreed on, and every package examined by inspectors, the remedy would be worse than the disease.

"There is no way to prevent members of the trade-mark federation from 'glucosing' honey, if there is money in it, except through our statute laws, and it would be no aid in enforcing them. It would be a fine cover under which to dispose of inferior but pure honey, creating a suspicion of adulteration in all who ate it."—*American Bee Journal.*

CUTWORM MOTHS.

PROF. COOK MAKES US ACQUAINTED WITH THE PESTS.

Can you or Prof. Cook give in GLEANINGS the history of the cutworm, and how to destroy them? They have caused great damage in this section this spring. ALFRED SOPER.

Eau Claire, Wis., June 10.

[Prof. Cook replies:]

There are several species of cutworms which belong mostly to two genera of moths—*Agratis* and *Hadena*. The moths are of sober color, fly wholly at night, and so are called night-fliers, or are said to belong to the family noctuidæ. These moths fly from July to September, and lay their eggs about grass-stems, strawberries, or other perennial plants. The eggs soon hatch; and the larvæ, which are usually dirty white, gray, or nearly black, feed on the plants. During the autumn they are so small that they do no conspicuous damage. The next May and June they are large and plump; and if the grass was plowed for corn or garden vegetables, like cabbages, tomatoes, etc., they often do alarming damage. I have tried several successful methods to withstand these enemies. Wrapping the stems of tomatoes and cabbages with sized paper, holding the same with earth at the bottom, is a success. Tin about trees and vines keeps the caterpillars from crawling up in the night and eating out the buds. Planting turnips or other early vegetables often protects orchards. For field or garden we may trap the worms by using mullein or bunches of grass. If these are put about the field in bunches, the worms gather under them, and may be gathered early each morning and destroyed. If the grass is thoroughly poisoned by use of London purple, we may not need to collect the worms; yet we are more sure if we gather and destroy them. I have known a large pailful of worms to be gathered in a few hours by use of such traps. This may seem like a severe task; but where cutworms are very abundant it often pays a great profit for the time spent, and saves labor and expense of replanting. I have known many to use this on a large scale, among whom are D. M. Ferry & Co., who have been more than pleased with the result. In case of a cornfield, the traps or grass bunches—small forkfuls—should be placed every two or three rods apart each way, just before the corn comes up. If these are examined each morning, the cutworms will be found beneath them, and are easily gathered and destroyed. We have used these traps this spring, and previously, with marked success, and so I can recommend them to Mr. Soper.

MYRIAPODS.

The insect sent me by W. P. Root is a milliped, or "thousand-legged worm." This is one of the lowest orders of myriapods. These are many-legged, cylindrical, harmless, vegetable-eating myriapods. They sometimes eat vegetables, and do much harm. We find them in considerable numbers under our cutworm grass traps. The millipeds never have 1000 legs, but they may have over 200. These species may be handled as safely as an angleworm, though many people regard them with dread and serious alarm.

The flat myriapods have fewer legs. two instead of four to each joint, and only about sixty in all, and often many less than this. These are quick, carnivorous, and poisonous. Ours here are so small, however, that their bite is not serious. I never hesitate to pick them up, and have never been harmed. A. J. COOK.

Ag'l College, Mich.

[Friend Cook, you just briefly touched on the one point that interests me most in the above. You admit that myriapods are poisonous; but in the next sentence you intimate that it is only when they bite *you*. Now, suppose you bite *them*—then how about it? We have heard many stories of people who ate a milliped that was curled up in fruit, say near the stem of a peach; and a good many have been frightened because a thousand-legged worm was found between the loose leaves of a head of cabbage. Well, if one of these worms should be cooked with cabbage, would it poison the people who ate it? I feel quite certain that you will say no. But so many have got this notion, we should like to have you tell us the truth about being poisoned in this way.]

DOOLITTLE'S METHOD OF QUEEN-REARING.

FRIEND NEBEL'S SUCCESS WITH IT.

Having been in the queen-breeding business for the past ten years, we have, during that time, tried all the methods which have been recommended for rearing queens, but have found by the "Doolittle method" we can raise better and finer queens than by any other method we have ever tried. Last year we raised and sold over 800 queens by this method. This season, from April 15th to June 1st we raised nearly 400 queen-cells. We do not use the wooden strips to fasten the artificial cell-cups to, but fasten from 12 to 18 cups to a frame of comb, which is cut in two—that is, using only a half-comb, as shown on page 56 in Doolittle's work on queen-rearing. In this way we get from 10 to 16 large cells, which hatch larger queens than any we ever had to hatch from colonies that prepared them previous to swarming.

The plan of using an upper story with a queen-excluding honey-board between upper and lower stories is of valuable service for raising queens during the swarming season, and the upper story is also a good queen-cell nursery. We have sometimes from three to five lots of queen-cells in such a nursery. The bees take care of them the same as if they had no queen in the lower story. As these lots of cells are of different ages, we cut each lot of cells out on the 10th or 11th day. Considering all the good points which are gained by the above-named method of queen-rearing, we would not dispense with it for any other known method now in use. JNO. NEBEL & SON.

High Hill, Mo., June 4.

[We have been using an upper story of a strong colony for a queen-nursery, with considerable success. It is far ahead of the old lamp-nursery, in that the bees will take *partially* completed cells and finish them up. We just take frames of cells from good strong colonies with good queens, brush the bees off carefully, and set the whole in the upper story, queen-nursery above the queen-excluding zinc. In this we have cells in all stages of growth; and when we want cells we go to this upper story and cut out those that are, so to speak, "ripe." Doolittle's book is first-class.] E. R. R.

OFF FOR CALIFORNIA.

DR. MERCHANT REPORTS TWO CASES OF CALIFORNIA FEVER.

Mr. Editor:—Some weeks since I was represented in your columns as having a dangerous attack of bee-fever, which, I am happy to say, ran its normal course, reached its crisis, and, under the skillful hands of a trained nurse, terminated in convalescence. I now have the melancholy pleasure of reporting two cases of "California" fever, which have recently come under my observation. Although my case was considered critical by my friends, the prognosis of these two cases still remains in doubt.

A gentleman from York State, whose principal business seemed to be *rambling* around the country, chanced to be traveling this way, and fell in with Mr. Arthur C. Miller, a native and resident of these plantations. With them it was "hail fellow well met." Both being adepts in the science and art of bee culture, this subject, of course, engaged their attention from the start. Among the many knotty questions and projects discussed by them was the advantage of California as a honey-producing section, compared with the East, and also that most charming climate which is said to be the finest in the world. The low price of honey in that State, the frequent appearance of foul brood, the excessive heat in the interior towns, and the frequent droughts, with a consequent failure of the honey crop, had no terrors for them. The cases of the California fever in this section of the East are sporadic. With Miller the premonitory symptoms began to develop some three or four years since; but of late, his friends cherished the hope that the disease had been eliminated from his system; but not so. The germs were "not dead, but sleeping," ready to spring into action under any circumstances favorable to their development. It was different with Rambler. He inherits this migratory disposition, and this present attack is simply the outward manifestation of a constitutional disease.

RAMBLER, HIS COMRADE, AND THE DOCTOR—THE TABLES TURNED.

The discussion continued to a late hour, the fever running higher and higher. Alarming symptoms having set in, I was summoned at midnight, and arrived just in time to see the lamp of life flicker in its socket, ready to go out. I lost no time in administering cordials and stimulants to bring about a reaction. The stimulants seemed to agree with Miller. He soon felt better, was himself again, and called for more. Not so with Rambler. He was positive the stimulants made him worse. As a last resort I spread two large mustard plasters, and applied one in front and the other behind; and in due course of time I inquired how he felt. He being a modest, well-bred man, simply replied that he realized, with a *tenderness* he never felt before, the exact position of a sandwich in the community. Reaction now being fully established, matters began to look more encouraging. I therefore excused myself for the night.

On calling the next morning I found my patients able to get from the bed to the table, and from the table back to the bed again, and their heads level, especially on the bee-business. So, in order to settle matters for good, and retain the friendship of my patients, I suggested a change of climate. I advised them to go west, and halt not until they reached the Golden Gate.

"That is the best prescription you ever gave," said Miller. "I go. To friends, hobbies, and home, I bid adieu. I sacrifice every thing. I turn my face toward the setting sun."

"Same here, brother," said Rambler.

"To my own dear Lake George, those broad valleys, those rough and rugged hills my eyes have scanned for half a century, I bid adieu for ever. Of my ancestral home, a spot than which none other seems so dear, I take a long farewell. Your prescription, doctor, is as sweet as honey. I swallow it at one mouthful. My eyes are fixed on the Golden Gate. I go. I take nothing with me but a paper collar."

I suggested, in the most tender and gentle manner, the propriety of his taking his clothes and a few shekels of silver along with him. Miller acquiesced, acknowledging that, perhaps, some time he might feel the need of them both.

Finding my patients now in a happy frame of mind, and able to travel, with a warm wave of the hand I bade them adieu, wishing them a God-speed on their journey. J. M. MERCHANT.

Warren, R. I., April 3.

NO DUTY ON IMPORTED QUEENS.

FURTHER PARTICULARS, AND WHO BROUGHT ABOUT THE SPECIAL RULING.

Friend Root:—We have won all along the line. Although an excellent lawyer, himself an official high in government employ, told me that he saw no hope under the present law, except by special legislation, I did not rest the matter, but wrote an elaborate memorial to Sec. Foster, urging a liberal construction. This is now given, and we can receive queens *by mail*, and *free of duty*. Three cheers for *U. S.!* I inclose the letters, which I am sure will be of interest to the readers of GLEANINGS.

Ag'l College, Mich., June 18. A. J. COOK.

[When we saw the item in the daily papers, as reported editorially in our last issue, we surmised that Prof. Cook had been doing some good work; and from the above it appears that we were correct. Perhaps an ordinary individual would have been discouraged and left the matter as it was, with 20 per cent ad valorem duty. Not so with our energetic and indefatigable friend Cook. This makes twice that he has rendered distinguished service to bee-keepers—first, in securing the privilege of sending queens by mail; second, in securing the release of the duty on imported queens. Three cheers for Prof. Cook, and for Assistant Secretary Spaulding, of the Treasury Department! Hip, hip, hip!—

The following is a copy of the letter from the Acting Chief of the Divisions of Customs, Andrew Johnson:

DIVISIONS OF CUSTOMS 7702. TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., June 15, 1891.

Prof. A. J. Cook, Zoological Department, Agricultural College, Mich., Sir:—You are hereby referred to the Collector of Customs at New York, for the Department's decision of the 12th instant on the case mentioned in your letter dated 15th ultimo, relative to entry of queen-bees. A copy of the decision is herewith inclosed. Respectfully yours,

(1 Encl.) ANDREW JOHNSON,
Acting Chief of the Divisions of Customs.

The next is a copy of the instructions to the Collector of Customs, containing the decision which brings about the relief:

TREASURY DEPARTMENT.
7702-F. OFFICE OF THE SECRETARY,
Washington, D. C., June 12, 1891.

Collector of Customs, New York, N. Y., Sir:—The Department is in receipt of a letter from Mr. A. J. Cook, Professor Zoological Department, Michigan Agricultural College, dated the 15th ultimo, in which he incloses a copy of letter addressed by you to Mr. W. C. Frazier, Atlantic, Iowa, in relation to the admission to free entry of queen bees under the provision of paragraph 482 of the Act of October 1, 1890, which exempts from payment of duty "any animal imported specially for breeding purposes," but prescribes that "no such animal shall be admitted free unless pure bred of a recognized breed, and duly registered in the book of record, established for that breed," and that "certificate of such record and of the pedigree of such animal shall be produced and submitted to the customs officer, duly authenticated by the proper custodian of such book of record, together with the affidavit of the owner, agent, or importer, that such animal is the identical animal described in said certificate of record and pedigree."

It has been represented to the Department, and it is doubtless true, that queen-bees, which are classified for duty as animals, are never imported for any purpose other than breeding; that they are always of superior breed, and adapted to improve the stock in this country, but that, from the nature of the case, the keeping of books of record of the recognized breeds and the furnishing of certificates of registry, as required by said provision of law, is impracticable.

Queen-bees were admitted to free entry under the provisions for animals specially imported for breeding purposes, contained in Title 33 of the Revised Statutes, and the act of March 3, 1883; and the regulations applicable to other animals were modified as to bees so as to dispense with certain requirements on their importation as to inspection.

In other cases, where the production of statutory evidence was impracticable, and the importation came clearly within the spirit of the law, such evidence has been waived, as in the case of works of American artists, imported after their decease, on the ground that the law does not require impossibilities.

The Department is therefore of opinion that it was not the intention of Congress to change the practice in the matter of the free entry of queen-bees imported for breeding purposes, and that queen-bees of recognized breeds may properly be admitted to free entry under the provisions of paragraph 482, without requiring the certificate of record and pedigree specified therein.

You will therefore be governed accordingly.

Respectfully yours,
O. L. Spaulding,
Assistant Secretary.

[Now, the question naturally arises, "What shall bee-keepers do who have already paid the duty on their imported queens?" It will do no harm to write to the Collector of Customs as above, reminding him of the decision, and asking whether a rebate on shipment upon which duty has been paid can not be made. You will see by Our Own Apiary, elsewhere, that we received an importation of fifty queens, and paid duty on the same. We shall at once ask for a rebate on the duty.]

Ladies' Conversazione.

STONES ON HIVES.

SOME IMPORTANT MATTERS DISCUSSED BY MRS. AXTELL.

When we began keeping bees we thought it very necessary to put a stone on top of each hive, as we have very high winds sometimes, especially in summer; but because of the trouble and hard lifting we left them off and have not used any for 15 years or so. I can't remember of having the covers blown off, except six or eight at two different times, which did no harm to the bees or honey.

I remember writing to the late Moses Quinby (as we got our first hives of him), and telling him we should have to put a very heavy stone on the top of each hive, or stake them to the ground, or the wind would blow them all to pieces, because the sides and ends were not nailed, but clasped together and dovetailed at the bottom-board; but we have never had a hive blown over or even moved by the wind off its foundation.

LARGE GOURDS AND SQUASHES FOR BEE-FEEDERS.

I notice that gourd seeds are advertised by Christian Weckesser, of Niagara Falls, N. Y., that will raise gourds that will hold from four to ten gallons. I wonder why they would not make first-class feeders, both for feeding out of doors and in the hives. The inner walls of the gourds would be so rough that the bees could readily climb out; and the pulp, when dry, would act as a float; but possibly it would become too soft, and would need to be scraped out and something else substituted as floats. A small opening at the top of the gourd could be cut out, and deep grooves or notches could be cut in, and the whole covered up with a cloth if fed in the hives, or they could be halved and used as feeders, and they would not leak or dry up as wooden feeders often do.

Last fall I picked a summer squash and laid it up to get thoroughly ripe before saving the seeds. I forgot to attend to it until several months after, when I found it had dried up so hard that I could not cut it with a knife, and had to take a hatchet to cut it open. I thought, "Why would they not make a good bee-feeder?" The pulp was dried hard, like shavings or chips; also the flesh was dried up. Nothing remained but a hard dry rough shell, inside and out. One side is large and flat; the other is small, so that it would readily stand up and not tip over. A lid could be cut off the top, and deep notches cut in, so that the bees could crawl in when covered over with a cloth, and there would be no leakage nor drowning. The greatest objection to such feeders would be, it would raise the honey-boards too high above the frames. It would leave much air space (cloths could be tucked in around them), but it would not make so much difference in the fall when all the brood was hatched out, and would not make more empty space than section cases would.

FEEDING OUT OF DOORS.

The way we are feeding our bees just now (fearing some colonies would starve before we could feed them and some being too weak to be exposed in feeding in the hive), we put two long shallow boxes in a little room at the out-apiary, the ends of which came up to the little window that is taken out, and a board fitted into the window, making a shelf for bees to alight on. Cool days the feed was poured in warm, and the room warmed by the stove in the back end of the room. The bees fill themselves and fly straight to their hives, and do not alight on the tops of the hives, and chill, on cool days, as they do when fed out of doors; and it is but slight labor to feed thus 250 or more colonies of bees compared with having to feed in the hives, and seems to us a better way early in the spring, if there are not too many bees of the neighbors within a mile. If any are very near, so their bees get the benefit of the feed as much as the one who does the feeding, he ought to be willing to bear his proportion of the expense of the sugar fed.

When night comes on, and the bees do not get it all taken out, it does no harm, as they will find it the next warm day and take it all up, working at it leisurely with little or no robbing or loss of bees, and it makes the bees pleasant to work with. We do not feed regularly, and then the bees do not hang around the feeders like a cat for her morning meal; but if they can fly out at all, the first few bees seem to tell the rest quickly. If one will put a little resin into a dish, and melt it as hot as can be, until it smokes profusely, it will attract the bees very quickly to the feed. Honey fed in this way would make them too excited and wild. The syrup should be diluted much thinner than if fed in the hive or honey-house.

Just before I wish to work with bees I like to fill the feeders, and then I have no trouble with robbing if I do not needlessly expose combs of honey while opening hives.

Later in the spring, when bees can fly nearly every day, sorghum syrup is just as good as sugar if one has it of his own make, using but a little at first, and increasing until they can use half sorghum; but as sugar is now so cheap there is nothing saved by buying sorghum. We thought this spring we would feed in the hive, as almost everybody else does; but it is so little trouble each day to feed out of doors, and it works so nicely, we can't see but it is much the cheapest and best way for us. Others who have neighbors near who have bees and would not be willing to bear their share of the expense, could not do so unless their time were worth more than what sugar syrup the neighbors' bees would take.

Strong colonies will take much the most, just as strong colonies will gather more honey; but the weak ones do take their proportion, working just as hard according to numbers as the strong ones, and it seems to stimulate them to brood-rearing just as much or more than if fed in the hive. Warm days we do not warm it—simply stir water into the sugar and pour off the water. If none is melted, the bees will pick up the grains of sugar and carry it out of the feeder and waste it. Just as they carry it out of the hive, or the hard candied honey in their cells, they will carry out grain by grain.

I think it would not be well to thus feed in the fall unless all colonies were scarce of feed and weak in numbers, which, with us, is now the case. Some colonies will have twice and sometimes five times the most honey, so that it becomes necessary to feed individual colonies.

When a colony of bees gets the swarming-fever bad, swarming two or three times, if empty combs are given them, and the sections for comb honey taken away, they will settle down at once to active work and stop swarming, and generally raise a young queen to supersede the old one. I think they are not satisfied with the old queen, the reason they swarm more than once; that is, the first swarm when it swarms more than once. We often hear the remark, that Mr. France, the Dadants, and some others, have but very few swarm; but is it not because they extract their combs and do not run their bees for comb honey, rather than any other management different from other people? The colonies we run for extracting seldom swarm, especially if we do not let them get too full of honey as it daubs their wings and makes them unable to fly if too thick.

I should have mentioned, that, in the feeders, must be placed wooden floats that will remain just so far apart, or many bees will get drowned. We use thin slats nailed together, standing up on their edges, about ½ inch apart, enough to cover the top of the troughs. The troughs should not be too long to handle easily, so as to turn over occasionally and brush out; and if they get to leaking, resin, melted with a bit of lard to soften it, melted very hot, and poured in on one side, and the trough lifted and let run around the seams at the bottom and up the sides will make it secure. That is one reason we prefer to have the feeders in a house to prevent their drying up. At the home apiary we are feeding in the same way, only we use an upper room with a south window thrown open. They fly round and round in the room but very little, but fill themselves. MRS. L. C. AXTELL.

Roseville, Ill., April 16.

[I have often thought of gourds for feeders and other utensils. Perhaps nothing else of the same capacity can be produced so cheaply; but they are of such rude and irregular shape that we can not nest them away as we do tin pans, wooden butter-dishes, etc. They have already been advertised for sugar-troughs, for making sugar. Another objection is, that, if any thing sours in them, it is so much more difficult to keep them clean and sweet than tin utensils. Your idea of having a feeding-room where all the bees in the apiary can be fed, even during cool weather, I believe is an excellent suggestion. I once used a small greenhouse or cold-frame for the purpose, and I never saw brood-rearing go on more to my satisfaction than with this arrangement. Bees seem to do better when they take wing to get their feed. The objection to my plan was, that sunshine was a necessary adjunct, and this we often failed to get in springtime. Your plan of a stove in the back end of a room, it seems to me, would be just the thing. Fixing your feed in one room, and filling just one feeder, is certainly an immense gain over going from one hive to another, especially when we have to go over 50 or 100 hives. I believe the saving in labor would pay, even if our neighbors' bees, or bees from the forests, do get a little of the syrup. I know bees will go so quickly from the hive to a warm room, that they are kept at work during quite cool weather; and, so far as I can see, few if any bees are lost.]

BUILDING UP WEAK COLONIES.

FASTENING FOUNDATION.

I have just been reading Mrs. Axtell's article, page 467. I can sympathize with her feelings about the weak colonies, as I have been over the same ground. Yes, I have heated the stones for them. But, Mrs. Axtell, it doesn't pay. It took me several years to find it out, but I believe I learned the lesson thoroughly. Dr. Miller good naturedly let me have my own way about them. I suspect he thought I would not be convinced in any other way. To be sure, you can build them up into strong colonies, but it is always at the expense of your strongest colonies, and the brood or bees given to the weak ones can be used to better advantage if given to colonies that are tolerably strong, but will bear a little more strengthening before the harvest.

If all your colonies, except these few weaklings, were so strong that your queens were being crowded for room to lay, and you felt obliged to take away brood to give the queen room, and had nowhere else to put it, then it might do to give to the weak ones brood with adhering bees. But we don't very often find our bees in that condition. If you want to increase your number, you can form a nucleus later in the season, and build up into a strong colony at much less expense; or, if you don't object to swarming, let them swarm.

You say, "I would not weaken strong colonies to build up weak ones." But, don't you weaken them just that much when you take brood and bees from them? also that you pay back again? Now, I should like to ask where you get your brood and bees to pay back. If you take from the weak to pay back, I should think that would retard their building up very fast; but I believe that is the most profitable way of building up, to take from the weak and give to the strong.

Again, you say, "I don't know that such tinkering with bees would pay for high-priced labor, but for us women-folks who need outdoor exercise, and something to keep us out of mischief, I know of no better employment." Now, Mrs. Axtell, I do not believe in that kind of doctrine. If it doesn't pay a man it doesn't pay a woman; and I know of no reason a woman can not do any thing with bees that a man can, except it be for his superior strength and ability to do heavier lifting.

About that foundation-fastening. Yes, you understand me correctly, friend E. R. I mean the heat to do all the work, using no foundation-fastener whatever. I think you must have had your foundation too soft in the first place, or else you must have heated it so slowly that it got soft enough to bag before the wire melted its way in. After reading your remarks, I thought I would see how much bagging there was in the work I had done. It so happened that there were seven hives full of frames of foundation in the shop, that the bees had never touched. So I went and looked at them, and could find no bagging. Then I called Dr. Miller to look at them, and said, "I wish you would tell me how much bagging you find in those hives." He looked at quite a number, taking a frame here and a frame there out of the different hives, and then said, "No, there is no bagging. Lay one of those frames down so that the light can not shine through it, and I defy E. R. or any one else to say where the wire is unless it be wired side up. Neither is there any appearance in the foundation in any way that heat was ever applied to it. Moreover, you can tell E. R. that it is away ahead of any other kind of imbedding, and I wish he would stick to it till he gets it right."

I said, "I wonder what can be the trouble. It seems so very easy to do it just right."

"Yes," he replied, "it's very easy to do a thing when you know just how, but it's very easy to make some little mistake that throws every thing wrong." Then he put on a very wise look, and said, "You see the secret of it lies in this: The foundation heats very slowly and the wire very rapidly. You hold the foundation in intense heat for a little time, and it is not affected, while the wire held there the same time is almost red-hot. Now, the hot wire coming in direct contact with the wax, rapidly melts the wax just at the point of contact; and then the wire, just as quickly cooling, leaves no change in the form of the foundation, only the wire is imbedded."

I think he is right, for I hold the foundation close down in the gasoline, and then move it very rapidly. I think that's the secret of success. I wish you would try it again; but Dr. Miller says the fault may be in your "location."

Marengo, Ill., June 10. EMMA WILSON.

[My good friend Emma, may I help our mutual friend Mrs. Axtell a little on her side of this argument about "it will not pay"? First, I wish to repeat what I have said several times —it *does* pay to save valuable queens, even if you damage a strong colony by so doing—that is, under some circumstances it does. Second, you say if it does not pay a *man* it does not pay a *woman*. Well, may be that ought to be so; but, unfortunately, it is not. There are thousands of women wanting work; and manufacturers tell me that almost any number of women can be found in every town or city, who will gladly work for fifty cents a day rather than not have any work at all—that is, where there are more than enough women in the household to do the work; and there are many more *women* who consider it a privilege to work for fifty cents a day than *men*. Again, there are both men and women who become fascinated with bee culture, and who would work with bees for fifty cents a day rather than to work at some other employment which would give them three or even *four* times that amount of money. When I was a merchant in town owning a few bees, almost every day (after having done a certain amount of indoor work) I longed for something to do with bees; and I can remember many days, after I had done every thing I could think of with my few colonies, I longed for something more to do, even if it did not pay very well. A great many times, when tired out with the duties of the store and office, some kind of work with bees was really a recreation and rest. We have a good many among our readers, who, I think, feel just this way, especially the younger ones in the business, and those owning a few colonies; and I think these people will make it pay to learn to rescue weak colonies—saving those by hot stones, taking them indoors nights when the weather is severely cold, in order that they may be kept alive until warm weather comes, and fruit-blossoms are out. The man who has hundreds of colonies in out-apiaries, and who has got past keeping bees for the fun of the thing, may well say that it will not pay *him* to fuss in that way.] A. I. R.

BUILDING UP SMALL COLONIES IN SPRING.

I enjoyed very much reading how Mrs. Axtell builds up small colonies in spring with such loving care. A German woman told me that her grandfather in Germany kept bees, and that they were placed upon shelves, fastened to the sunny side of the house, and that, every night during cool weather and chilly days, they were brought into the house, where they were kept warm. Would it not be better to have small hives holding only two combs, to build up small colonies in spring, so they could be easily carried into a warm room during cool nights?

This locality, so far as I know, has never failed to produce a flow of honey from the river-bottoms, and bees go into winter quarters strong in young bees; and this may account in a great measure for the lack of many small colonies in early spring. Are the queens belonging to such small colonies of value? If so, why are the colonies so small? When I was a scholar in school I loved to solve difficult problems, and I yet enjoy doing what is difficult; and I should like to be able to accomplish this, to build up small colonies into large ones, without taking brood and bees from other colonies to do it. MRS. L. HARRISON.

Peoria, Ill., June 10.

[I have stated before, Mrs. H., that queens from such small nuclei have proved to be equal to any; but all attempts to take care of a large number of very weak colonies, and bring them through the winter and spring, have, so far as I know, generally failed.]

Humbugs and Swindles

A subscriber to GLEANINGS mails us the following:

PLEASE DONT Expose.

DEAR SIR,

It is with pleasure we send you this Circular, and we hope you will read it carefully, and decide to go to work at once.

We have a large lot of GREENBACKS for sale that can not be told from genuine, except by an expert. It will pass anywhare like a dandy except at Washington, D. C. It is as fine an imitation as human skill can produce the work. We have these goods in 5 s, 10 s, and 20 s, only. No less than $5. worth sold except to persons not able to order that much at a time, them can send what they are able.

If you have no use for our goods pleae dont give us away. Make your orders large as possible, you will not regret it. Never mention money when you order. Say send medicine, large small or medium size bottles. We will understand it. Never send registered letter as I will not sign for it. Send Greenback, postal note, or by Express, or Check on New York. We will ship your goods by mail or express, as you wish. Please dont write unless you order, and say as little as possible then. Prices, $40. for $5. $100. for $10. 300.00 for 25.00. 700.00 for 50.00. 1000.00 for for 70.00. and so on.

Address,

W. J. NELSON,
Lemay, N. C.

Of course, it is an old, old swindle; but as there are some who do not seem to know about it, we give the contents of the circular verbatim, spelling and all. I hardly need say to those who are conversant with these matters, that people who send out these circulars never deal in counterfeit money at all. All they get in the above transaction is clear gain; for, of course, any party so lacking in conscience as to send for counterfeit money would never make any complaint, nor undertake to expose them as frauds. Some very good people have said, "Let them go on with their scheme; serves them right." In one sense this may be true. But there may be young people and thoughtless people who are so lacking in conscience as to have a desire to get and pass counterfeit money, if they felt sure they could do it without detection. The time was when our nation suffered much from counterfeit money, but there is comparatively little of it of late years. Men who possess sufficient skill to make a successful imitation can usually make enough honestly, so there is little temptation for entering into a business that ends so quickly and so surely in the penitentiary. We hereby give notice to the postal authorities to stop delivering mails to the above address, if any mails have been delivered.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 188. *I have 75 colonies of bees. Other interests oblige me to move to the village of P., where Mr. N. has an apiary of 120 colonies. He says there is no more pasturage than will support his bees, and thinks I ought not to bring mine there. If I put my bees on my own lot, I think I have as good right there as he. Am I right or wrong?*

Legally you may be right; but morally you are wrong.
Vermont. N. W. A. E. MANUM.

You have legal right on your property, but it will be of no material benefit to you, and very detrimental to N.
Louisiana. E. C. P. L. VIALLON.

He has priority of location; and if you move near him you will only injure him without doing yourself any good.
Illinois. N. W. DADANT & SON.

An answer to this question may be found in the 12th verse of the 7th chapter of Matthew. If you don't read the Bible, just try it once.
Ohio. N. W. A. B. MASON.

You are perfectly right. I verily believe that there is room enough in your neighborhood for several more besides you, even if our good friend Dr. Miller says, "I don't know."
Ohio. S. W. C. F. MUTH.

You're right. There's no law against it; but as civilization advances, I think there will be; and if I were in your place I think I should be a little ahead of the age and do just as I would if the laws were all right.
Illinois. N. C. C. MILLER.

If the premises are correct, that there are already as many bees in the village as can be supported, then certainly you don't wish to keep any there, as you would be a loser. If the pasturage will support more, you can probably compromise the matter.
New York. C. P. H. ELWOOD.

You have not as good right as he has: he has the right of priority. I would not be afraid of your bees, if I had the larger apiary. It is the nature of a bee to fly a distance from its hive in search of honey; and my observation causes me to believe that a large apiary, many times, will whip out a small one.
Illinois. N. W. C. MRS. L. HARRISON.

If Mr. N.'s statement is true, you are both right and wrong—legally right and morally wrong. You would do yourself a wrong with nothing to compensate you except knowing you had done your neighbor N. also an unkindness.
Ohio. N. W. H. R. BOARDMAN.

I see no reason why you should not share the honey harvest, though he is correct in his first assertion; and if he depends on his bees it would show a very kind heart for you to leave him the field. "It is more blessed to give than to receive." Happy the man that proves it.
Michigan. C. A. J. COOK.

Legally, right; but, candidly, get yourself just as near in the skin, thought, and position of N. as you possibly can, and tell us whether you would then think and feel as you do now. If not, then the doctrine of "do unto others as you would have them do unto you" will not be your doctrine should you move your bees to the village of P.
New York. C. G. M. DOOLITTLE.

If I were obliged to move into town, as you say, if I could leave the bees where they are I would do it if the distance were not too great, rather than put them on a locality already occupied to the extent you say it is in town. But as to the *right* of your taking bees there with you, you have as much right as he has. But if you both keep all the bees you have on the one locality, you will be overstocked and won't get much honey.
Wisconsin. S. W. E. FRANCE.

Legally you are entirely right; but for financial and moral reasons I would not take them there. Mr. N. does not want them in his field, because he knows it materially cuts down his pro-rata surplus yield. Now, while your 75 are cutting down the yield of his 120, what will his 120 be doing to your 75? Your interests are mutual. You may have a different opinion in regard to this, but my opinion coincides with Mr. N.'s.
Michigan. S. W. JAMES HEDDON.

You are right, my friend. You have a legal right to go and share the pasture with N.; and the next man has a right to share it with both of you. Nothing but self-interest seems to cut any figure in the matter. I know just how to sympathize with N. I have been in his place, and gently remonstrated with the man who was coming, and argued priority of location, etc., but he couldn't see it. He said it was a free country; air, water, sunshine, dew, and honey, are free. So many thought that way that I was obliged last spring to make an investment of about $3000 and move my bees 30 miles or share a range with others with twice too many bees on it.
Wisconsin. S. W. S. I. FREEBORN.

Well, there! if this isn't a personal-liberty question! John B. Finch said personal liberty ends when that fellow's fist comes in contact with the end of his nose. Certainly, you have the *right* to place your 75 colonies right over the fence, next to Mr. N.; but, is it justice? Just reverse the case. How would you like to have N. move his 120 colonies of bees out into your field? I think it would be justice for both of you to look the field over, and then locate your bees where they will not interfere with your neighbor. He has the prior right, and it should be respected.

New York. E. RAMBLER.

If bare compliance with the laws is all you desire, you are right. If you have that new life that Jesus of Nazareth came into the world to bring, you will find it says, "I can not take advantage of the law to do my fellow-man a serious injury." Sit down and think over carefully all the circumstances of the case. Then put yourself right in Mr. N.'s place, and ask the question, "What would I wish and expect an honest man to do?" Then go and do that very thing. If you should talk the matter over with Mr. N. in a right spirit, very likely some joint arrangement could be made for running your bees as an out-apiary, which would be better for you as well as better for him, than trying to buck against his 120 colonies.

Ohio. N. W. E. E. HASTY.

If you purchased the place for a home, including the keeping of bees on it, while your neighbor already had it fully occupied, it is doubtful about the propriety of your having done so; otherwise you need not consult him. I have lately changed the location of my bees, paying $100 a year for the privilege of ground to set them on; but having over 400 hives, I think it too many for one location, and accordingly I purchased a location a few miles away to set a part of them on; but as there are three other small apiaries covering the same ground, perhaps 200 hives in all, I have set 25 hives on my new purchase, and am now querying in my mind whether to set more there or to take away what I have there, simply out of deference to the neighbors, although they have not specially objected.

California. S. R. WILKIN.

Legally you are right: morally you are wrong. Yet it is not much worse than is done daily in other lines of business. Suppose A keeps the only grocery store in a town, and does it to the satisfaction of all, making a good living at it. B starts another store, and divides the trade. The public is not benefited. A is impoverished, and B makes only half a decent living. The right of B to do this is not usually questioned; but, is it right? Your action in moving into N.'s field is somewhat worse than that of B, because B would probably have some difficulty in finding an unoccupied grocery field, while you can probably find an unoccupied bee-range within five or six miles, and any number of them, without much trouble. When four-fifths of the honey secreted goes to waste for the want of bees to gather it, why rob another of his share by infringing on his territory?

Illinois. N. C. J. A. GREEN.

[Why, boys, I actually feel proud of you. Yes, I feel glad to think we have a cabinet of advisers who can collectively compass a matter so thoroughly as you have done in the above. Every shade and phase—legal, financial, and moral—has been touched upon; and there is a good sound ring of "Whatsoever ye would that men should do unto you, do ye even so unto them" in every one of the answers, if I am correct. We have had experience in that very matter here. Several times, even after I assured those who brought bees into our neighborhood that they could not stand any chance with our 200 or 300 colonies, they felt, perhaps, as if I had some selfish motive in saying so, and concluded to try it. But, as Mrs. Harrison says, they all gave it up sooner or later; and now we have all the bees in the vicinity, unless it is a few colonies belonging to some of our hands. We like to encourage our workmen to keep bees —just enough to know how the work on hives, etc., ought to be done. Well, I believe the general decision is, that bees five or ten miles away do very much better than where there are so many. I have met with a few men who persist in such a course as is mentioned in this query. But the man who would bring 75 colonies into the vicinity of 120, I should set down in my own mind as a bad man; and I should expect him to be bad in other ways whenever opportunity offered. This is the very sort of men, too, who are always having bad luck. Just look about you, and see if what I say is not true.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

POLLEN FROM ONE OF THE GRASSES.

The following notes, kindly handed me by Dr. W. J. Beal, are worthy of record in your valuable journal:

> Yesterday bees were gathering pollen from the grass *Festuca ovina*, or sheep's fescue. Some years ago I saw bees in great numbers gathering pollen from *Festuca elatior*, and also from *Plantago lanceolata*. About two weeks ago they were gathering pollen abundantly from *Pinus Bankseana*. These plants all yield dry pollen, which is supposed to be distributed by the wind; that is, all are *Anemophilous*.

I can add to the above, that our bees are now gathering pollen very rapidly and abundantly from the Austrian pine (*P. Austriaca*). As the bees alight, a cloud of pollen rises from the plant. It takes a bee only a very short time to load up. I have never seen them gather pollen so rapidly from any thing else. A. J. COOK.

Ag'l College, Mich., June 3.

HONORING THE INVENTOR BY ATTACHING HIS NAME TO THE INVENTION.

I trust Dr. Miller will not take umbrage if I call his attention to a remark relating to name of comb frame, page 457. The Langstroth frame has never had any other name than the revered name of its inventor; and allow me to express the veneration I cherish by protesting against designating the greatest invention relating to bee-keeping by any other than the name of its inventor. I would not wish to be dogmatic in suggesting that bee-keepers adopt the rule of giving the name of the inventor in some way, in connection with the invention. In this day of small rewards, the most enduring tribute would not seem too much for a grateful fraternity to bestow. T. F. BINGHAM.

Abronia, Mich., June 10.

CELL-BUILDING IN THE HIVE: HOW THEY DO IT.

On page 165 of the A B C you give an account of cell-building. You have described the whole process of cell-building. Now, the bee carries the wax under its chin, so as to make it hot enough to stick, and he does not work it when first put on, because it is too hot. It takes a few seconds to cool off, owing to the temperature of the hive; then a bee bends the wax down, then another bends it back. The bending makes the wax thin, and lengthens it. The next wax is put on, and the bending process is repeated. Take a few pieces of wax, and bend them the same as the bees do, and you will see the reason one bee does not finish the work at once. The cell is made by bending the wax backward and forward. S. W. BARNARD.

Olathe, Kan., June 19.

A NUT FOR DOOLITTLE TO CRACK: DO THE BEES THAT GATHER THE HONEY ALSO PUT IT INTO THE CELLS?

Friend Doolittle says that the bees that gather the honey do not put it into the comb. I say they do, the same as the bees that gather the pollen. Friend D., just throw flour on the bees that come in with honey, then watch through the glass on the side of the hive, and you will change your mind. In sending in reports in regard to wintering bees, May 15th is soon enough; then we know how many colonies we have got safely out of the woods. I have 42 out of 61. I had the first new swarm May 26, and took off the first sections May 30. Bee-keepers, there is going to be a large crop of honey; and the first thing to do is to get sections and hives in time. Fayette Lee.

Cokato, Minn., June 1, 1891.

SHIPPING DRONES FROM THE SOUTH, FOR EARLY QUEEN-REARING IN THE NORTH.

I do not know that the shipping of drones north in early April has ever been attempted with any degree of success. If not, friend Craycraft (did you see what that dyspeptic says in the *Canadian Bee Journal* about calling friends "friends"?) and myself have made a new departure in progressive bee culture. However, even if it has not been before undertaken, I have no idea a patent will be applied for; but friend C. deserves as much credit for his successful delivery of drones north in early spring, which has enabled me to rear queens much earlier than by any forcing method. The Adams Express Co. deserves "boycotting" for excessive and unreasonable rates on bees.

Jno. C. Capehart.

St. Albans, W. Va., May 6.

[Friend C., this matter of shipping drones has been tried at different times for years back. I believe, however, they do not ship very well; and when they get to their destination, so far as I am informed they do not seem to answer the purpose intended. If you and friend Craycraft have succeeded, let us know more about it.]

A GOOD TESTIMONIAL FOR THE PORTER BEE-ESCAPE.

Please allow a few words in praise of the Porter bee-escape. We have tested it this season, and find it perfection. We use it on a board ½ inch thick, with a ⅜-inch space on top. It cleared the bees from a super in five hours. We shall not try any other, as we find in the Porter all we want.

Will some one tell us how to prevent comb honey being infested by moths or worms?

Roxobel, N. S., June 15. Barnes Bros.

[As a rule, friends, there is but little trouble from moths or moth-worms where Italian bees are the rule and not the exception. Our text-books on bee culture discuss the matter thoroughly in reference to fumigating with brimstone. I believe, however, that few bee-keepers find it necessary to do this since the Italians have so extensively taken the place of the blacks.]

THAT MISSING INDEX.

Mr. Root:—I want to growl just a little this one time. It will not be worth while to set apart a "Growlery" on my account, for I do not promise to do any more after this one time. What troubles me now is, I can't find the index in Gleanings. May be it is a good thing to make people read it all through, but sometimes I want to refer to something in a hurry. I pick up Gleanings, make a rush for the index, but, alas! it is not there. I then begin to leaf it over, because I have no time to read it all through just then, and perhaps do not find the passage readily which I wish to find; then, oh how I wish there were an index to every number of Gleanings! However, if no one else wants an index but me, I am willing to submit patiently. So, inclosed you will find one dollar, for which please send me Gleanings another year, index or no index.

Durango, Ia., June 5. Jos. M. Woodhouse.

[There, friend W., I for one am very glad to have you talk right out plain. I told the boys I knew it would not suit; but they said, "Well, let's try it and see how many people grumble." Now, if you had not "growled" you see they would have taken it for granted that nobody wanted the index particularly, except your old friend A. I. R.]

LARGE BLUE MOTH.

Mr. Root:—I send you a miller which is found around the fruit-trees a good deal toward night. What do you think they are about? What kind of mischief are they at? I. B. Whiton.

Ithaca, Mich., June 15.

[Prof. Cook replies:]

The large slim wasp-like moth, sent by I. B. Whiton, is *Ctenucha virginica*. The larvæ feed on grass, and the insects are never common enough to do serious harm or awaken alarm. The moth has an orange head, blue thorax, and black wings. It flies in the day time, often in the hot sunshine, though more generally later in the day. It is a handsome insect, and in size, form, and coloration, mimics our large blue wasps. This no doubt saves it from attack by birds. A. J. Cook.

Ag'l College, Mich.

QUEENS FROM DEAD COLONIES.

When you have queens saved from colonies that die early in the spring, how do you keep them till you want to use them?

Edmund J. Purcell.

Clachan, Ont., June 3.

[Friend P., we can keep them sometimes for a few days, or may be two or three weeks, in a queen-cage, giving them fresh bees every four or five days, being careful, at the same time, that they are kept in an apartment that is always up to about 70 degrees. If you wish to keep them longer than that time, you will have to take a nucleus from some strong colony; and if your bees have the spring dwindling, you may lose the strong colony and the nucleus too.]

USING DRONE COMB IN THE UPPER STORY, FOR EXTRACTING.

Would you advise the use of frames that have drone comb in the upper story for extracting, using queen-excluders? J. R. Colville.

Coleman, Mo., May 25.

[Some years ago drone combs were used for this purpose; but I have not heard much about them of late years. Will some of our friends who work for extracted honey tell us about it?]

EARLY SWARMING IN ILLINOIS.

Bees were swarming in this vicinity two weeks ago. I hived a very large swarm yesterday, which gives me four colonies to begin with. The bees here have had a regular picnic all spring, the best in many years past. White clover is beginning to bloom. There are but few bees kept near my town, but the pasture is No. 1, generally. D. A. Cadwallader.

Prairie du Rocher, Ill., May 11.

REPORT FROM ALABAMA.

We have an excellent honey-producing country here, but bee-keepers are many years behind the modern improvements. I don't think there is a single frame hive in the county, with the exception of what I have, and the bee-keepers come to my place and view them with wonder when I open up the hive and exhibit the combs and bees to them. I have only 16 colonies this season, as I was unacquainted with the honey resources of the country, and did not start until late. But my bees have gone clear beyond my expectations. They have the lower story all jammed full of honey and brood, and I put on supers several days ago. Next year, if the good Lord spares my life, I am going to be ready in time. There is plenty of white clover here, and hundreds of trees and flowers that yield honey. Just now they are working on honey-dew. I never saw the like of it before. I have seen honey-dew in Ohio, but nothing to compare with it here. Inclosed I send you some hickory leaves with it. It comes on hickory, chestnut, and poplar. It is well-flavored honey, not like the sickly stuff that we got in Ohio, which killed 50 colonies of bees for me in 1883. F. H. Finch.

Florence, Ala., May 31.

BEES ON SHARES.

What is customary, as a rule, in keeping bees on shares? What must the keeper furnish for half of the honey and half of the increase of bees? Must the keeper furnish supplies for the bees taken, and must he return the same number of colonies when he gives them up as he received—that is, must the keeper furnish, out of his share of increase of bees, to keep the hives full of what may perish, during winter, of the number taken? Who furnishes hives for increase of bees? W. M. Rush.

Courter, Ind., June 1.

[Friend R., the customary way has been explained several times in our back numbers; and once or twice it has been illustrated with pictures. Briefly, it is this: The bees are let out without any particular understanding on either side, unless it be, "Of course, we will both do what is fair and right in the matter." Before the year is up, however, there will be a big quarrel—sometimes a neighborhood quarrel; and if the arrangement is with old friends, they will probably never be friends again afterward. Jesting aside, there is not any rule that I know of for bees on shares, neither can I see how there can be a rule made that will take in all contingences. If there is among our readers a man who is both bee-keeper and lawyer, and who thinks he can draw up a brief agreement for both parties to sign, and one that will be satisfactory on both sides, and not omit unexpected contingencies, we should be very glad indeed to have him try his hand at it. The trouble will be, the document will be so voluminous that, when the quarrel comes, it will transpire that one or both parties never read it through carefully.]

BEE-ESCAPES; THE REESE ONLY, A SUCCESS.

My bees have swarmed with a vim. Cutting out queen-cells and putting on sections early availed nothing; cutting the queen-cells and returning the swarm about sunset has worked well so far. Where this plan works with me I see but one objection—trouble of requeening after the season is over. By doubling my first swarms, and from a few strong colonies that did not take the fever, I have had the pleasure of further testing bee-escapes. I can't agree with friend Brown, page 459, June 1. Only the Reese, or vertical, works with me. I made several the past winter to fit the top of the hive, having two vertical cones 2½ inches by 3 in depth, with an opening of exit nearly ⅜ of an inch. If too small they clog it, and you have a failure. I also want a space between the end of the cone and brood-frames of at least an inch. I don't want a bee standing on the top of the frames, not even when two or three deep, to be able to reach the mouth of the cone. I use no smoke, and put it on just at night, and take off as early as possible next morning. Cool nights give best results.

OLD PHOSPHATE-SACKS FOR SMOKER FUEL.

It is said, that necessity is the mother of invention. With me it has led to the discovery of a fuel for the smoker, far ahead of any thing else I ever tried. It is a well-worn phosphate-sack. Let me say to Dr. Miller, get the most worn one you can find. Have it perfectly dry; tear it into as narrow strips as possible, or haggle it thoroughly with a keen-pointed knife. With these fragments pack the smoker fairly well; pour on a few drops of coal oil to facilitate ignition; apply a match; now work the bellows until well caught. It is a little slow in getting caught; but, that accomplished, it will smolder for hours. It gives the best suppressed combustion of any thing I know of, punk not excepted.

Manum's device for hiving swarms is a real pleasure. There is a warm place in my heart for the man who brought it out. It will live after its inventor has ceased to be among men.

Guys, Md., June 9. Wm. S. Adams.

EIGHT-FRAME HIVES TOO LARGE.

Experience here shows that an eight-frame hive is too large when running for comb honey.

Andersonville, Ga., June 1. S. F. English.

[Well, well, friend E. While everybody else is afraid that eight frames are hardly large *enough* for an average colony, you decide it is *too* large. What, then, shall we have—seven frames, or shall we come down to a six-frame hive? A six-frame hive would be very nice to carry into the cellar; and if one raised bees for sale, they would be very nice for another kind of "seller"—that is, providing the *buyer* did not object.]

CUTTING BEES OUT OF A TREE.

I bought a bee-tree for $1.00. The bees went in at the ground. I cut it off just above the bees, and set a box hive on top of the stump, and smoked them up and chopped in and split off till I got all of the comb out. It had lots of young brood, and the largest swarm of bees I ever saw. We carried them home and put the comb into my new frames, and shook the bees out on a sheet. They went in as nice as a new swarm. I saw the queen as she went in.

Detroit, Ill., June 7. Wm. Casteel.

A SUNDAY-SCHOOL TENDERS ITS COLLECTION TO TOMMY STRINGER.

I carried the case of Tommy Stringer (the blind boy) to our Sunday-school, and asked for a collection to be taken children's day for him. It was readily granted, and has been taken. Inclosed find a money order for $4.50.

Harmon, Ill., June 16. Mrs. G. E. Balch.

[My good friend Mrs. B., Uncle Amos takes the responsibility of tendering his earnest thanks to the dear children for their interest in friend Tommy. Perhaps our friend Helen Keller, if she is not tasked too greatly, will also send a message to that Sunday-school.]

ALUM AS A REMEDY FOR SNAKE-BITES.

Tell Prof. Cook that I am sorry to think that that so good a man as he should advise the use of liquor in a case of snake-bite, even though he does it under protest. One tablespoonful of alum for adults, taken internally, will cure any ordinary case, by which I mean a bite from an ordinary-sized snake. This is not hearsay, but actual experience on myself and others, with rattlesnake, copperhead, and moccasin bites. If Prof. C. wishes more particulars in regard to this I shall be happy to furnish them to him.

Kyle, Tex., June 22. A. SION.

[We are with you in regard to the liquor part of your letter, friend S. But alum as a remedy for bites is something I never heard of. And, by the way, wouldn't a tablespoonful of alum be a dangerous dose? Will Prof. Cook please tell us what he thinks about it? Its astringent property, it seems likely, might prove somewhat of an antidote for the poison of a snake-bite, if the latter does not act too quickly. And then, again, confronts us this old fact, that possibly these snake-bites would not have proven fatal anyhow, and that the alum may not after all have had any thing to do with the recovery.]

BEES IN FINE CONDITION.

Our bees are in fine condition this spring. We had 35 colonies last fall. All wintered through excepting one. We have had four new swarms. All are strong, with a very fine prospect for a white-clover bloom. PETTIT BROS.

Cross Creek, Pa., June 8.

This is the best honey season we have had since I have been in the business.

Altoga, Ind., June 20. ANDREW CROOK.

We have had to feed our bees more this spring than ever before. White clover is very scarce in this neighborhood. MRS. L. C. AXTELL.

Roseville, Ill., May 29.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

THE AMERICAN PEARL ONION.

At present writing, June 25, these onions are, some of them, one foot in circumference. Just think of that, will you? We are getting a nickel for a bunch that weighs only 10 ounces, tops and all. For the larger ones this amounts to about a nickel for an onion; and yet these were all planted last September, and the cultivation since that time has amounted to almost nothing. The onion reminds me so much of the Bloomsdale Pearl, from Landreth, that I wrote him, asking if it were not possible for the Bloomsdale also to winter over in Ohio. Below is his answer:

> *Mr. Root:*—Yours of the 15th came duly to hand. Most certainly the Bloomsdale Pearl onion-set, planted in the autumn, will stand the winter of Ohio. For the past 15 years we have been growing this variety on Bloomsdale Farm, Bucks Co., Pa., where they stand out every winter. We have had 50 acres standing out. The Bloomsdale Pearl and other varieties of sets are planted out three inches deep during the months of September, October, and November, and winter as hyacinths in any garden, making a strong root growth, and frequently quite strong tops.
>
> In our publications we have recommended the Bloomsdale Pearl sets for the South, as, planted there in October, they make an almost uninterrupted growth, developing to four and five inches in diameter, and coming into market earlier than Bermuda, and consequently bring a high price. It is singular that so little is known of the advantages of sowing onion-sets of any kind, in the autumn.
>
> Bristol, Pa., June 18. D. LANDRETH & SONS.

Now, why in the world have we all this time been so stupid? I have written to both Landreth and Johnson & Stokes for sets just as soon as any can be had, and will try to get enough to supply all demand.

Here is something about this same onion in the South:

> Reading your experience with the American Pearl onion induces me to state that I have used the Bloomsdale Pearl here. Last week I took some to market that were from four to five inches across, and weighed from 1¼ to 1¾ lbs. They sell at six cents a pound. A. SION.
>
> Kyle, Texas, June 22.

[We are glad to get your testimony, friend S. Six cents a pound for onions that can be grown for one cent a pound, if we could not get any more! Now, then, the question is, Can these onions be dried and cured so they will keep? Can you tell us any thing about it?]

NEW STRAWBERRIES FOR 1891.

In the first place, we shall hold fast to our original four of last year. The Bubach and Jessie were both a good deal injured by frost, but gave us a tolerable crop after all. The Haverland has proved itself away ahead of any thing else in quantity of fruit; and reports come from all sides that it stands the frost better than almost any other. The Gandy was probably injured but little by frost, for it is so late. These are just now ripening when other strawberries are pretty much gone; and the sight of great, beautiful, handsome, fresh-looking fruit when all others are on the wane, is enough of itself to give them a place. I often feel disgusted, however, to see great rows of such tremendous foliage bearing so few berries comparatively. But I suppose we can not have *every* thing we want in one strawberry. In addition to the above four, we are going to offer plants of the Sterling also. It is a beautiful strong grower, with dark-colored foliage, and it seems to stand the frost quite well. The berries are handsome, but—oh my! how sour! They would make a fair substitute for lemons, and they are said to answer excellently for canning. We planted one row of them late in the fall, and I believe we did not lose a plant, and they have given us quite a little crop of berries. Now, the above five are the only kinds from which we shall have plants for *sale;* but we are going to increase our grounds by the following three: Edgar Queen, Parker Earl, and Shuster's Gem. The two first promise to yield almost equal to the Haverland; and the Edgar Queen gives not only a great quantity of berries, but they are of nice shape and color, and of good size. The berries have a flavor strikingly like a fine Red Astrakhan apple. Shuster's Gem was under disadvantage, because it did not have a spot of ground equal to the others. Lady Rusk and Saunders are awaiting further trial. A great many other kinds have qualities to recommend them; but so many others crowd them, we have decided to give prominence to only those mentioned above. We have secured much better prices for our berries this year—yes, and our early peas too—by being very careful not to let the pickers get ahead of the sales; that is, instead of having berries get old in the crates, we prefer to have them get old on the bushes, and give them to customers within half a day after picking them, if we can. If they can have them only two or three hours after picking, still better. We pick just enough at night for the wagon to start with in the morning. When the pickers commence in the morning they pick just about what the wagon will need when it comes around at 9 o'clock. If they have an unusual demand, one of the two men who go with the wagon brings back notice.

EARLY PEAS.

With us the Alaska has been from a week to ten days ahead of the American Wonder. We had just two rows. These were sown in March by raking down the top of a ridge where celery was taken out in the fall. The weather was so cold and the ground was so wet, it seemed as if they would amount to almost nothing. We sowed them, however, putting the seed in quite thickly. The two rows both together were, probably, fifty rods long. As they made the most of their growth before any weeds were up, they had almost no cultivation at all. When the vines began to tip over we stretched poultry-netting a foot wide, so that the lower wire was perhaps six inches from the ground. As the peas went six inches above the upper wire, they stood about two feet from the ground. Well, from the two rows mentioned above we sold ten bushels of peas for $25.00. Most of them were sold by the quart, because they were away ahead of the market, and, of course, brought a high price. The pickers were cautioned not to pick a pod unless it had good plump peas inside. Unless this is properly attended to, the average picker will, with the *Alaska* pea, cheat the purchaser by giving him pods with almost nothing in the shape of peas inside. If they are picked carefully and *conscientiously*, however, and you have the first on the market, you can sell a few at almost every house for from 7 to 10 cents a quart, giving them the peas, as I said before, within only a few hours after being picked. Twenty-five dollars from two rows is pretty good business. And that is not all: The vines will be ready to plow under July 1, and then you can put in cabbage, celery, early corn, or even Early Ohio potatoes, if you have the seed—or, in fact, almost any crop if your ground is up to the proper notch of fertility.

PARSNIP SEED THAT WON'T GROW.

The demand for the Guernsey parsnip this season was away beyond our anticipation, so we sold out toward the close of the planting time. The only way I could get any more seed was to send to Atlee Burpee, the originator; and as there was not time to test it ourselves before filling orders, quite a good deal was sent to customers. Out of the same bag, we planted for ourselves five rows 40 rods long. Well, on our ground not *one seed* came up of the whole five rows. The ground was all right and the weather was all right. Carrots, beets, vegetable oysters, and all other seeds right in the same plot of ground, came up beautifully. It does seem as if the second lot of seed from Burpee *must* have been worthless. But in this business of seed-sowing I have learned to be slow in condemning. After waiting fully three weeks I sent to another seedsman for parsnip seed that he *knew* would grow. We have now waited ten days, but not a seed of *this* has started. As the ground has been soaked with water almost all the time, this may partially account for it. Now, you who have bought Guernsey parsnip seed out of this second lot are desired to report, and we will try to make the matter satisfactory. It is the only failure that I know of among our seeds, this season, and we are planting all the seeds we offer for sale, right along, day after day.

A NEW USE FOR THE "SOUTHERN QUEEN" TURNIP.

I write you for information; and if your time is not too fully occupied you can do me a favor, and save, perhaps, a costly experiment. I am proposing to sow about 40 acres in turnips among the corn. Would it be best to sow before the cultivator (we use the Albion spring-tooth), or immediately after the last time the corn is cultivated? I find just what I have been wanting for years, in the "Southern Queen," or winter turnip. I have been experimenting with the "Cow-horns" as a fertilizer until you brought out the "Southern Queen." I had only a pound of seed from you, and the amount of winter pasture it furnished was a surprise to me, and I shall have quite a lot of seed, as I did not turn any of them under green. After the seed-stalks were taken off, the boys turned under a fine lot of partially sound turnips to help bring on a crop of melons and beans. I am not ready to put what I claim for turnips before the public until I am better supplied with positive information; but I believe a crop that can be made between seasons will furnish as much fertility as a crop of clover that takes a year to make.

Avon, Ind., June 11. A. A. PARSONS.

[Friend P., I have not had sufficient experience to advise very much. I would, however, advise sowing the seed after the cultivator had been through the corn the last time; and if you can manage so as to get it in just before a shower of rain, I think you will find most of the seeds will come up promptly. Your idea of using this turnip as a fertilizer is no doubt of value. We have tried it to some extent, but it does not produce any such result as a crop of clover. In fact, I do not know of any other plant that equals clover for plowing under. Perhaps some of our readers can advise you in regard to your forty-acre experiment; but if I were you I should greatly prefer to try five or ten acres before going in so heavily.] A. I. R.

SELLING STRAWBERRIES, ETC.

GLEANINGS is at hand for June 15. Accept thanks for your kind remarks on my strawberries. Without doubt, there is a field open for the producer as well as the consumer to get nearer to each other, to the benefit of both. One thing is plain to me: A man may be a successful producer, and at the same time be a very poor salesman. Berries are largely grown in this vicinity. Thousands of bushels are shipped from here. I am satisfied that many berries are sold three to four times ere they arrive at the consumer's table. This means a low price for the producer and usually a high price for the consumer. I think the general unrest of the farmer is caused in some measure by the unbusiness-like way he disposes of his merchandise in the market. Let us try to improve in all directions. R. STEHLE.

Marietta, O., June 20.

STRAWBERRIES, ROSES, AND PUMPKINS.

I am much interested in your gardening. Strawberries, roses, and pumpkins are my hobbies. I raised last year 36 squashes that weighed from 100 to 214 lbs.—average 165, besides tons of smaller ones. Hardy roses, grown in the open ground, can be sold by the million. One who loves bees, naturally loves roses.

CHAS. J. QUINBY.

White Plains, N. Y., June 9.

[Friend Q., you had better invite Dr. Miller to come and see you when your roses are in bloom. Here at the Home of the Honey-bees we manage to have pumpkin pie once a week the year round. So you see our tastes run a good deal parallel.]

A MARKET-GARDENER WANTS BEES FOR FERTILIZING BLOSSOMS.

The Simplicity hives ordered are for a market-gardener who keeps bees to fertilize cucumbers in his greenhouses. The greenhouses cover over an acre of ground. and are now nearly filled with cucumbers. He lost nearly all his bees this winter by confining them in the hive and leaving them in the greenhouse; and between the time he lost them and when he bought more (about two weeks) he says the loss of cucumbers by their failure to set would have more than paid for the bees (six hives). The fore part of the winter his houses are filled with lettuce, radish, and pie-plant, and by March 1st they are replaced by cucumbers, and lettuce and radishes are grown in hot-beds.

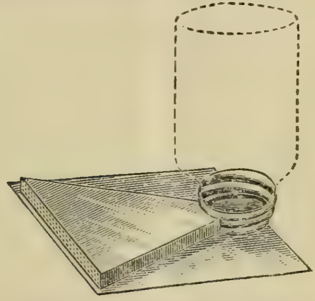
Bloomington, Minn., May 26. E. R. POND.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

AN EXCELLENT FEEDER FOR STIMULATING BEES.

Some time ago our engraver sent us a hasty sketch of the feeder shown below, remarking that he thought it might be a good thing, and that possibly we would like to examine into the merits of it. Away long back in 1881 I remember that the senior editor was very enthusiastic over a feeder similarly constructed.



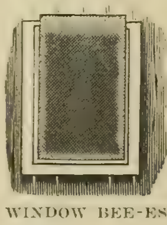
MASON-JAR ENTRANCE FEEDER.

He had some made and put into the yard; but on account of his burden of duties at the time, the matter seems to have been dropped until some bee-keeping friend resurrected it, and forwarded it to the engraver to reproduce. We do not know who the bee-keeper is, but perhaps he will recognize the device from the engraving. and possibly tell us more about it. At any rate, we had some made in our tinshop, and they are now in the apiary.

The great beauty of this feeder is, it forms a part of a common household article—a quart Mason jar. To the zinc cap is fastened a sort of tongue, with perforated metal in front. This front extension is only ¼ inch thick, and about 4 inches long, and can readily be slid into any entrance. During feeding, the syrup passes down on the atmospheric principle, and oozes out slowly at the perforated metal, clear inside of the hive. The great convenience of this feeder is, that no opening of hives is necessary. All you have to do is to fill a couple of half-bushel baskets full of them. and go around to the hives where the slates or stones on top indicate they are short of stores, and slip one of these feeders into the entrance, when, presto! the whole work is done. No robbers will bother, because the point where the bees get the feed is four inches from the entrance (under the frames. The glass jar shows readily when it is empty. It will take but a few minutes to put about two dozen of these feeders to each hive; and during a dearth of honey, just when these feeders are likely to be used, and robbers are moving around, no thieving bee need get even a taste of honey from the hive. This feeder is only for stimulative purposes. For winter we very much prefer the Miller feeder, and feed up all at once.

REVIVING THE HOUSE-APIARY.

I have been conducting, during the past two weeks, quite a series of experiments, to prove or disprove some of the latest ideas, and among them the bee-escape for the house-apiary. You will remember that W. Z. Hutchinson, of the *Review*, as well as the senior editor of GLEANINGS, suggested that the escape might overcome some of its most serious objections. I had been thinking the matter over for about a week; and the upshot of it was, I told the boys to clean out the upper story of all rubbish and unused traps, for this is all the use the building has had for six or eight years. When in use it had two-inch auger-hole entrances. We tacked Reese cone bee-escapes over a dozen of these entrances so that the bees in the dark would see these holes if they got inside of the room, and escape. Those entrances which we expected to use were closed temporarily until we could put in nuclei. There are windows on three of the eight sides, hinged at the top, opening on the inside. These were darkened by nailing black tarred paper on the sash. To make the room comfortable while working in the building, these sashes are hooked to the ceiling above; and to prevent robbers from coming in from the outside, wire cloth was nailed on the outside window-casing. This wire cloth must permit the escape of the bees from out of the room, but prohibit the entrance of bees from the outside. Accordingly, it was cut eight inches longer than the casing, and allowed to project that length above the top of the window. The upper rim of the casing was cut away a quarter of an inch deep and clear across, so as to allow the bees crawling up inside to pass up and out. Those on the outside would not, of course, think of running down the passageway eight inches, and then entering the house-apiary—at least, very few would do so. Lest some of you may not get an idea of what this sort of window bee-escape is like, I herewith reproduce an engraving made two or three years ago, taken from Langstroth Revised.



THE WINDOW BEE-ESCAPE.

From the cut, I think there will be no trouble about getting a correct idea. It is the same thing used by the Dadants, Dr. Miller, and other prominent apiarists, to cover the windows of their honey-rooms. The bees that happened to collect on the inside of the room fly toward the light, crawl up on the screen, and finally pass out. If they return they will not strike the point above the opening in the window.

Well, now, how does it work? Nicely, so far. The screened windows make the room nice and cool, and the small Reese cone bee-escapes nailed to the entrance permit what few bees there may be in the building, to escape after the room is darkened and closed up. You see, there are about a dozen entrances that have Reese bee-escapes on. After the room is darkened there are a dozen holes that shine dimly. The few bees that may be inside fly to these holes and pass out. Years ago, when we used to work in the house-apiary we were troubled by bees that collected on the floor making their way toward the door when it was opened, as there was no means of their escaping; and, furthermore, as we did not then know of the window bee-escapes, we had to work in a hot, sultry room, poorly lighted, and, more often than not, filled with smoke. The bees that crawled on the floor, somehow managed to crawl up our trousers legs, and get mashed under foot; and this, with the heat and smoke of the room, was unendurable. All these things forced us to abandon the house-apiary. When we go to work *now*, we close the door behind us, open up the darkened windows, and let the breezes of summer pass through. The smoke passes out of the windows so as to make no serious inconvenience. Still further to obviate the difficulty, I have in my mind's eye a ventilating shaft to connect with the peak of the building, under which to set the smoker when not in use. From present indications this can not be necessary; but should it be required it can be put in at very little expense. I have not yet tried the bee-escape for taking off comb honey inside. It is, however, too late to make this experiment; but if the bee-escape works *outdoors*, I know it will *inside;* therefore the house-apiary is not such a terrible place in which to handle bees, after all, judging from the present outlook. Subsequent developments may cause me to be disgusted with it, however.

Oh, yes! I forgot to say that each colony or nucleus in the house-apiary should be thoroughly fastened in by itself. Each compartment should be made as tight as any indoor hive. They are not yet quite bee-tight, but this fall I propose to have them fixed so they will be, if I continue to like it as a place for working with bees as I do now.

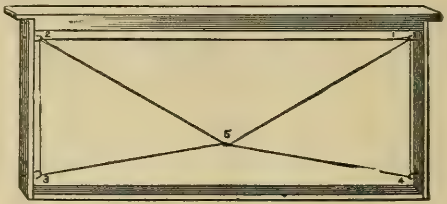
There is another thing that I did not mention; and that is, that there is no grass to mow—no long wet grass and weeds to wade through; no burning sun and no running indoors when it rains.

Do not imagine that I have gone so crazy on the house-apiary that I am going to recommend it in preference to hives outdoors—not at all. But there are a good many who, years ago, at considerable expense, built house-apiaries, and now they have them in disuse. I simply wish those who have them to see how they can be made available again. There are others located in cities, perhaps, where land is expensive, and a room or house-apiary on top of a building could be used very nicely.

SOLAR WAX-EXTRACTORS.

We have just had one of those large Boardman solar wax-extractors made. It is 6 feet long, 3 feet 4 inches wide, and 7 inches deep. The bottom is made in the shape of an inverted flat gable roof, the ridge-pole, as it were, running down lengthwise through the center. It it is then lined with tin on the inside. The length and width are just right so that standard greenhouse sash will just cover it. To keep the latter from blowing off it is held down by a pair of Van Deusen hive-clamps. Into this we can put some 25 or 30 combs at a time—old crooked combs that we got in buying up bees. As fast as they melt, the wax runs through the center of the extractor, and then runs down and finally communicates with a honey-gate in the end, from which the hot wax can be drawn off into a pan or any other receptacle.

It has not so far worked up to my expectations. The combs being so old and tough, I suspect, is the reason.



THE KEENEY METHOD OF WIRING.

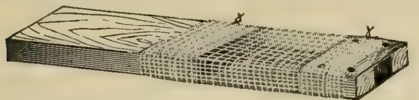
Last year we followed Mr. Hatch's suggestion on the Keeney method as to the use of one wire, and accordingly our frames were wired with the horizontal wire running along near the top-bar, as in the cut. We put a lot of those into use last summer. Somewhat to my chagrin I noticed that the foundation, after being slightly drawn out by the bees, bulged below the horizontal wire. Quite accidentally I ran across some others that had been wired the other side up; and such nice beautiful combs as they were this summer! All this is easy to explain. The cut above shows the frame, wired as Mr. Hatch recommended. Point 5 is securely braced, and there can be no sagging. The wire from 1 to 2, not being supported, may sag a little; and as it has with us sagged in every case, there will be a bulge in the foundation between the points 1, 2, 5, 1. Now turn this page upside down, and imagine the frame wired the other way—that is, the top-bar in place of the bottom-bar. A strip of foundation in between the points 3, 5, 4, being pressed against the comb-guide, will be held secure. The foundation in between the points 1, 5, 2 is held by the diagonal wires 1, 5, and 5, 2. If the foundation stretches any, which it surely will, the horizontal wire sags accordingly; and if the foundation is cut a little scant in depth, it prevents bulging. All such combs—and we have tried about a hundred of them this spring and summer in Hoffman frames—are as nice and true as boards. I am very sorry that I did not discover this before; and I am sure that friend Hatch will see the point himself. If you use heavy brood foundation there will be no trouble either way in wiring, and it is possible that is what he used. But heavy brood foundation is rather expensive, and so we use light brood.

HOFFMAN FRAMES IN THE SHANE YARD.

We have now about seventy colonies on Hoffman frames in the Shane yard, and I am still delighted with them; and for certain manipulations I am sure that I can handle double the number of colonies on them that I could on loose frames. Two weeks ago I had a good chance for a comparative test, as about half the colonies were then on loose frames. I divided and manipulated two colonies on the Hoffman frames, where I handled one on the loose. There are other operations where there will be no particular gain in speed; but to come right out frank, the Hoffman frames kill bees worse than I wish they did; but the more I manipulate them, the less I see the need of killing them. Don't forget, just before crowding the frames all together, to blow smoke between the end-bars, so as to drive the bees away; and then you will catch scarcely a bee.

INTRODUCING FIFTY IMPORTED QUEENS.

On the 13th of June we received an importation of 52 queens from Charles Bianconcini, Bologna, Italy. Only two were dead in the entire lot, and two were feeble. Heretofore we have introduced all our queens on the Peet plan; but having had so much success by the candy method I thought I would risk them. I selected Dr. Miller's introducing-cage as best for the purpose; and lest you have forgotten it,



C. C. MILLER'S INTRODUCING-CAGE.

I here reproduce the engraving, which we gave a few months ago. I tried some in the Morrison introducing-cage, and the two feeble ones on the Peet plan. About 30 of the queens were put into the Miller cages; and every one of the queens, so far as I know, was introduced successfully, the bees eating out the candy and liberating the queen; and not only that, the queens were given to colonies that had just been made queenless—that is, we did the foolhardy thing (foolhardy in the opinion of some) of taking out one queen and introducing another at the same operation. About ten others were put into Morrison cages. These did not work very satisfactorily, although we lost no queens. It took the bees so long to gnaw through the candy to get at the queen that we finally had to release them on the third day, and then go through the nuisance of "unballing" a few of the queens. Does this not prove that the operation of releasing queens is liable to start the bees to balling her as soon as she is let out? I have noticed it a good many times before, and Neighbor H. says he has also. The great secret of the Peet, or candy, method of introducing is, that the queen is released very quietly, without any disturbance. Did you ever notice that, sometimes, when handling a colony—that is, tearing it all to pieces, as it were—the bees will often ball their queen? The poor little chaps know that something is wrong, and so they lay it to the queen; and in making known their appreciation of the fact, they are quite apt to ball her. A colony that has been queenless is more apt to cut up this caper than one that has had brood reared in the hive continuously for several weeks.

INTRODUCING WITH TOBACCO.

I omitted to say, that, as a further precaution, I went around toward evening to all the colonies that had an imported queen, and blew tobacco smoke in at the entrance—enough to give them all one scent. As all the queens were successfully introduced except the two that were so feeble*, I do not know how much effect the tobacco had. But this I do know: Last year we received an importation of some fifty queens. Half of the number were given to Neighbor H., and half we retained in our own yard. They were all, or nearly all, caged by the candy method. We lost 25 per cent of those we introduced, while Neighbor H. lost none. In comparing notes we found that he had smoked his the night before thoroughly with tobacco smoke, while we did not observe this precaution. You know how we stand on the tobacco question in regard to its use by the genus *homo*. But a good many bad things (or things which are usually used in a bad way) have certain legitimate uses. There is nothing else that gives such a strong, clinging odor as does tobacco.

I have said, that all the queens were successfully introduced with the exception of those noted; but here were five or six, even after they had started to laying, that died, for some reason that we could not discover, unless it was that the long journey was too severe.

MYSELF AND MY NEIGHBORS.

Be sober, be vigilant; for your adversary the Devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5: 8.

What do I know about sin and Satan? If I commence to talk to you about bees or gardening, you would probably listen, for you would know that I talk from personal experience. Not only my daily work, but my daily sympathies and thoughts are full of these things. Now, dear friends, I do know *something* of bees, and of gardening and of strawberries; but, oh dear me! with pain and anguish I am obliged to confess that I know a *thousand times more* about sin and Satan; yes, and I know, too, from personal experience — actual conflict — and, I was going to say, from *actual contact;* for I feel every *hour* of my *life*, and in every *fiber* of my *being*, that I am *scarred* and *crippled* by sin. Somebody has said that there is only one thing that God hates, and that is sin. Why should God hate sin? In the first place, sin is *deceptive*. Satan is a *hypocrite* and a *liar*. We have the words of Jesus for it: "He is a liar and the father of lies." Sin *blinds* us. It spoils our ordinary good sense. It dims our perception. It makes us *crazy* when indulged in. Satan persuades us that the best friends we have on earth are enemies. He also persuades us that our worst *enemy*—yes, the very worst enemy we have in the *whole wide universe*—is our best friend. When a drinking man attempts to reform, Satan's very best chance of success is in persuading him that his old cronies are the *best* friends he has—yes, a better friend than his own poor patient wife and suffering children; and if he listens to Satan he will make him *believe* it again and again. The greatest trouble with us is, that we fail to *recognize* Satan. When some good friend tells us that this thing that is spoiling our lives is the work of Satan, we say, "Oh, no! Why, it is just exactly the other way."

Something like two years ago, in the middle of winter it became desirable for us to do some disagreeable work out in the mud in the streets. Three or four sturdy German men who were out of work volunteered to do it. I was out with them, directing them, so as to save a wasting of strength, uselessly, as much as possible, and also because I like to become acquainted with these German laborers. Why, there are three or four of them on our grounds for whom I have more reverence and respect, I do believe, than for many of my friends who always wear nice clothes, and hardly ever step into the mud enough to mar the polish of their soft fine boots. Now, please do not think that I mean any fling at well-dressed people or people of means. I love them; but I love, also, the sturdy laboring classes. I presume it will not be out of place to say that I rather *prefer* to be among the latter. When I find a great strong man who could toss me over a high board fence, and not half try either, I like him—I mean, of course, a good-natured strong man; and when this big fellow combines gentleness, kindness, and a good pure life, with his enormous strength, I just like to work by his side; and I rather think he likes me too. Well, on this wintry day, when I wanted somebody who could stand it to work out in the rain, and dig in the mud, I became acquainted with one of these German friends. The expression, "one of God's nobility," comes into my mind, and I am going to use it. Before long one of my foremen said, "That's a mighty good man, and I think we had better try to hang on to him." I smiled, for it was just what *I* had been thinking. Yes, there were two or three of them who carved out for themselves permanent situations before night that first day, and they are with us yet, and I should really like it if they could work with me as long as they live. One of them can not yet talk English very well, and sometimes he does the wrong thing in consequence; but I often tell my wife something like this: "Look here, Sue; whenever you see me vexed with Mr. ——, you just remind me of what I am saying now. He has, in times past, pitched into difficult work with such enthusiasm and energy that he has got a goodly balance on the other side to his credit, and I want you to remind me of it."

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*These two queens were caged in Peet cages, on the candy plan—that is, they were immediately given access to cells of sealed honey; but they were too far gone to introduce.

Well, not many months ago one of these very men came to me with a troubled countenance, and finally informed me that he must leave my service. I stood in open-mouthed astonishment when he went on to say that he had so much trouble with his wife that he thought it best for him to go away and never come near her any more.

"Why, my good friend, you have a nice little home all paid for, and, what is of a hundred times more moment, some little children who belong to you and your wife jointly. God gave them, and no power on earth can make them other than yours. Are you going crazy?"

"Yes, Mr. Root, I know about the children, and that is the saddest part of it;" and the tears came into his eyes as he spoke; but he insisted that the best thing he could do was to leave wife, children, and all, and go away off for himself. In vain did I try to tell him that, although he and his wife might both have been to blame, the main point before us was, that *Satan* had made an entrance into his household, and had succeeded in poisoning him against his wife, and his wife against him. He would not admit that it was Satan's work, however. Like Adam of old, he insisted that it was "the woman." She was so disagreeable he could not live with her. I told him he should consider the whole matter a good deal the same as if the *smallpox* or *measles* had got into the family. But he said he had tried to be peaceable and kind, until he could stand it no longer. I exhorted and implored. My friend, did you ever try to make peace, and drive out Satan when he had got once well intrenched? If you have, you know what a task it is. When I found I could do absolutely *nothing* with him, I told him that I was going to talk with his wife; but, alas! she could talk only German, and I only English; and he was determined to take the first train out of Medina. I made up my mind he was crazy. Well, he *was* crazy; so are *you*—so am *I*, when *sin* and *Satan* get us in their power. I remembered the Endeavor Society. One energetic member is a woman who speaks both English and German—a special friend of mine. I went for her, and she actually walked a mile and a half on a hot day, leaving her household cares. But she succeeded no better than I did. The wife said, "Let him go if he wants to." Now, this man professed to be a Christian; but I believe he had not united with the church. He told me his little girl said her little prayer every night before she went to bed; and yet he even contemplated leaving her *for ever* to the care of strangers, and the cold hard world, because he said he wanted "peace," and could not find it at home. He not only *contemplated* so doing, but he left his work, put on his best clothes, took a little satchel, and boarded the train. Am I not right when I say that Satan makes people *crazy?* That evening was the regular meeting of the Endeavor Society. I told them what was on my mind, and several prayers were offered in behalf of our poor friend. I remember that *I* prayed very earnestly that God would touch the heart of this deluded brother, and bring him back like the prodigal son. I prayed that God would take him in hand, and do that which I had found *myself* utterly *unable* and *incompetent* to do. I *thought* I prayed in faith; but yet when our friend came back in just 24 hours, I was *astonished*. I asked God to *send* him back; but while I was asking I am afraid I had no faith at all that he *would* come back. He seemed so determined that I fear that I had got an idea that even God could not handle him. He told me afterward, that, just about the hour when his little girl said her prayer before going to bed, he got to thinking of her and of the little prayer, and he could stand it no longer. Now, don't you see that this was about the hour when our little band of Christians was praying for him at the Endeavor meeting? After breakfast Sabbath morning, I thanked God in my prayer before the family, for the return of our friend, and asked him what next he had for me to do. Even while I was speaking, came the thought, "Go down and see the reunited family." We have our breakfast rather earlier than some people on Sunday morning, so I arose from my knees and walked down to the little home. Every thing was as neat and handsome around it as could be—a nice well-kept garden; trees, fruits, and flowers, and a hen with thirteen new chickens right near the front door. Of course, I met with cordial treatment. His little girl said her prayer to me in German, and the smiling mother asked papa to bring the prayer-book. I sang for them a few pieces from the Gospel Hymns, and then they stood up and sang one or two of their German hymns. Of course, I could not understand a word, but I found my stalwart friend could sing, as well as handle a pick and shovel. Why, we had a beautiful little service that Sunday morning, and I visited (?) quite a little with the pleasant-faced woman who could not talk a word of English. Could it be possible that this was the one whom her husband said he could not live with because she was so *hard to please?* Now, this is Satan's *regular legitimate* work. May be I can help you a little by telling you how the whole thing started. It all commenced by finding fault with each other. The woman not only did the housework, but worked in the garden and out on a few acres of ground belonging to their place; but either she did not do things right, or something else, and the father complained. Then she complained of the father, and Satan laughed in his sleeve as he saw the matter progress from bad to worse. Look over the daily papers, note the crime and suicide, and you will see the breaking-up of families starts in just this way; and it is possible, dear brother and sister, that, when your eye meets these pages, you may remember some experience of *your own* in something like this very line. Perhaps you were wise enough to say, before things got to a very bad pass, "Get thee behind me, Satan."

I have given you an instance in the above of the way in which Satan persuades one that his best friend is an *enemy*. Let me now take the other side, and show you how Satan may delude you into the belief that the worst enemy is your *friend*. You may recall what I said about the sad case of friend Mason, of the *Advance*, and of his going away with his lodger's wife. You have read this poor woman's plaintive letter that came away over the mountains from

California. Satan doubtless persuaded her that this man, who was the legal husband of another woman, was a *friend* of hers. She had had trouble with her own husband. This, of course, was Satan's work. It was a sort of foundation-stone for a structure that Satan was going to build. When he got the foundation in good shape then he began to persuade her that this very man was a *friend*. Why, it makes one *shiver* to think how Satan will craze the brain and delude his victim. Think of considering one a *friend* who would break up a household, and sever the most solemn and sacred ties! and yet such things are going on every day. Our daily *papers* tell the sad stories. At such times Satan comes as an *angel of light*. (See II. Cor. 11:14.) He persuades his victims that God sent him as a messenger of *peace*. He frequently puts on a sanctimonious air, and leads one to believe that his mission on *earth* is to relieve *suffering* and *distress*. In *awful* hypocrisy he even attempts to offer consolation and "rest to the weary." Perhaps by and by the victim sees the sham and the cheat, and recognizes how he has been trapped. But by this time the fetters are strong. They act not only like intoxicating drink, but, as I have sometimes imagined, they craze the brain like opium. The poor victim, under this sort of infatuation, thinks he can never again be happy unless he is near the idol which Satan has set up. And let me tell you, my friend, that Satan builds idols out of *exceedingly commonplace clay*. He will take the most commonplace individual on the face of the earth; then he will clothe this person with a halo of light. He will drape him (or *her*) with fantastic rainbow colors; and when he gets his victim where he is willing to *sell* himself, *body* and *soul*, for the privilege of *following* this ignus fatuus, his work is done. The man leaves his lawful wife, leaves the bright happy home, leaves loving children, who have learned to prattle his name in love, and goes off with—I almost shudder to say it—goes away with *another* man's *wife*, wrecking *two* households. By and by the scales fall from the eyes of both of them. They awake to the fact that this man or woman is no better and not much different from the ones they left. No *better*, did I say? Why, bless you, this is a great blunder of mine. Is the woman who runs off with some *other* woman's husband to be *compared* with the one who stayed at home, and was *loyal* and *true* to her *husband* and her *children* and her *God?* God forbid that such a thought could enter any one's mind. And yet these things happen here and there with startling frequency. It is the old, old story—*entrapped* by *Satan*. Now, I have been holding up a few notes of warning. I have suggested only *two* ways in which Satan breaks up households; but he has a *thousand* ways at his command. Some poor soul may say, "Well, brother Root, suppose we admit all you say. Suppose we say we knew beforehand what the outcome would probably be. Is there any hope for the sinner?" Oh! to be sure there is, my friend, and this is the happiest part of my talk to-day. There *is* a remedy, quick, swift, and sure. "Behold the Lamb of God that taketh away the sin of the world." "There is none other name under heaven given among men whereby we must be saved." No one was *ever* lost until he deserted his Savior and turned his back on him; and one who already feels himself to be lost has nothing to do but to turn about, like the prodigal son, and come home. What a word is *home!* It should always include the thought of going back to God. "God bless our home" is a favorite motto. While God reigns, and while the Savior is recognized daily, Satan is banished. But nothing but the name of Christ Jesus can protect us from Satan's wiles.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

If a man abide not in me, he is cast forth as a branch, and is withered.—JOHN 15:6.

EIGHT pages extra again this issue.

OUR Shane yard is booming with honey, while the bees at home have scarcely begun to whiten the edges of the cells. This is another evidence of what an out-yard may do when the home yard is doing comparatively nothing in honey.

WE have abandoned the pound cage for shipping bees by express, simply because a large percentage had to be replaced. We now use, instead, a nucleus box, and ship on combs of honey or brood. Sent in this way they always go through in good order.

SOME of the new bee-journals that started at the beginning of this year have either ceased publication already or else they are behind in their issues. What is the matter with them? Some of them will have to die or there will not be a chance for a new crop next January, as usual.

THE one-cent-postage Benton cage was first introduced by C. W. Costellow, of Waterboro, Me., instead of by W. J. Ellison, of Catchall, S. C. We are glad to make the correction. Mr. Costellow has been quite a pioneer in the queen-cage business, as the old back volumes of GLEANINGS show.

WE have just learned that Capt. J. E. Hetherington, with his several thousand colonies, is using a good many reversible Van Deusen-Hetherington frames. This is news to us, as we supposed he had exclusively the Quinby closed-end frames. Those Van Deusen frames are fixed frames, and have besides several good features.

MILK-SNAKES are becoming rather frequent at our out-yard. They are exceedingly fond of bees, and there are some big fat ones in our yard. Neighbor H. says a pair of them used up a whole colony of his once, and he has actually seen them gobble up the workers at the entrance. Who has a method of trapping or killing these "varmints."

LATERAL MOVEMENT IN FRAMES.

SOME seem to have the notion that fixed distances entirely destroy the function of lateral movement. Nothing can be further from the truth, if he uses the open-side, or, better, a hive a little wider, with a movable follower. By removing the follower, the hanging partly closed end Hoffman frames can be slid along, and leave plenty of room to remove any particular frame. Lateral movement is obtained in its perfection with Hoffman frames.

RAMBLER'S VISIT TO THE HOME OF THE HONEY-BEES.

WE have just had a very pleasant call from Rambler, now on a long ramble to California, all of which GLEANINGS readers will have the benefit. He seems to be in excellent health and spirits. Dr. Merchant's remedy works like a charm. See particulars on page 550. It is not often that we sit up late talking with bee-keepers; but with Rambler the time flew away so fast that, the two nights he spent with us, we talked till midnight and after, and then wanted to converse longer. Why is it that a couple of bee-keepers like to talk so long? Rambler had that mysterious and ever-present camera with him. Don't know whether he used it or not. We'll see.

The Report of the 22d Annual Convention of the New York State Bee-keepers' Association, held at Albany last January, in pamphlet form is before us. Price 25 cts. It can be had of the Secretary, G. H. Knickerbocker, Pine Plains, N. Y.

When you receive queens, be careful not to lay them on a shelf where ants can get at them. A customer just writes that the queen he received was a nice one, and he was well pleased with her. He laid the cage containing her and the attendants upon a shelf temporarily; and when he went to get her she was covered with small ants, dead. This has happened more than once, and hence this caution.

By request of W. I. Buchanan, Chief of the Department of Agriculture for the World's Columbian Exposition, the editor of the *American Bee Journal* has prepared a list of all the apicultural societies in the United States, and published them, with the name and address of the secretary. There are 111 in all in the list. As there are so many, there may be some errors, and the editor requests that corrections be made at once, so that he may be able to present a full representation before the directors of the World's Fair.

Our thanks are due to Mr. W. Z. Hutchinson, editor of the *Review*, and the stenographer who is taking down these words, for the kind things said in a well-written biographical sketch that appeared in the last *Review*, relative to E. R. R. It was a complete surprise to him. If we have said any thing of a complimentary nature in reference to Mr. Hutchinson's new book on the next page, it was said solely on the merits of the work, not because we desired to reciprocate. Our conclusions as to the excellent character of the new book were already formed before the *Review* with the sketch came to hand.

There has been some complaint because our index has been left out for several months. The idea of omitting it was that we might, at the end of the year, be prepared to make a more complete index of the whole volume. When it is made up just before going to press, justice can not be done it; and we thought that we would try the experiment of leaving it out without saying any thing about it. Well, as some have complained, we renew it again in this issue. One or two, for some unaccountable reason, seemed to take the omission as an insult or injury. We hope this explanation will satisfy all.

THE MICHAEL STRAWBERRY.

In my strawberry report I neglected to mention the Michael's Early. It is a splendid grower, and we could furnish any quantity of plants with very little trouble; but I very much fear that, like all the other *extra*-early strawberries, it is not a good bearer. As the frost killed most of the bloom in consequence of being so early, we have decided to give it a trial another season. We have also tested Lovett's Early; but as these were put out late last fall, we can not say much about them. The fruit is of good size, and I am inclined to think it will give us more berries than Michael's Early. We shall have to wait another season before we can say any thing definite. We have a great quantity of plants of Michael's Early to spare; but at present I prefer not to offer them for sale unless it is to somebody who has already grown them, and who feels satisfied they will produce fruit in abundance during a favorable season. A. I. R.

THE BEST METHOD OF FASTENING FOUNDATION IN SECTIONS.

The Hayes foundation-fastener, and the Arthur C. Miller machine, on the same principle, are far ahead of any pressure methods of putting starters into sections. The scheme of having a heated plate or a heated tongue held for a moment in contact with the edge of the starter, and said plate then drawing back suddenly, leaving the melted edge of the starter to stick on the section, is vastly ahead of any other method; and it seems hard to understand how any one can come to any other conclusion after having tried it faithfully. When we visited Dr. Miller a few months ago, we saw an Arthur C. Miller foundation-fastener hanging up on the rafters of the honey-house, unused. "Why, doctor, why haven't you tried it?" we asked. "Never had the patience to get it down and fuss with it. The Clark fastener is good enough." Doctor, you want to pull that fastener down and try it; and if you don't reverse your judgment, it will surprise E. R. R.

FIVE-BANDED VERSUS THREE-BANDED BEES.

W. J. Ellison, in the *Bee-keepers' Review*, says, "I have several colonies of five-banded bees; and if they do not do better another season, they will have to take the next seat lower. . . . . They surpass every thing in beauty; and the question now is, Shall we raise these queens because they please our customers, even though we feel that we have their superiors in three-banded bees?" In a letter just received from Mr. Ellison he reiterates in substance the above, and then adds: "I have three-banded Italians that can outstrip the five-banded bees altogether in honey-gathering. Some of them are also very irritable, and unpleasant to handle, and the crosses are not as easily discovered. A colony of hybrids from five-banded stock may be called three-banded pure." Our yellow bees were the first to die off, and some of them have been very irritable, and we attribute it to the fact that they were bred from Cyprian or Syrian bees. Let customers who want beautiful bees have them, but let them be acquainted with all their qualities. While we believe it is possible to breed both for utility and beauty in one bee, the *tendency* in such breeding is to single out color, and let every thing else go. Breed for energetic workers, and you have a quality in bees that is valuable—that is, a money-maker. If we can add beauty at the same time, then we are so much ahead. Mr. Doolittle thinks we can do this.

THE CANDY-MAKER AND THE BEES; A VICTORY FOR THE UNION.

The Bee-keepers' Union has scored another victory. At Easton, Pa., a certain candy-maker (as we learn from the *American Bee Journal*) took measures to have the council prohibit bees within the corporation. Before this body took any action, however, C. G. Beitel, a bee-keeper of that place, requested a hearing. He used the argument of Judge Williams in the Arkadelphia case, and then showed the committee that his bees were within one thousand yards of the city limits. As the city is only two miles across, moving them only a thousand yards would make no practical difference; and, besides, he explained that there are bees just outside the city limits, all around the city, and prohibiting them from the corporation would not help the matter at all, because bees will fly from one to three miles. One bee-keeper offered, at his own expense, to put screens in front of the windows and doors of the candy-factory; but the proprietor would not be appeased in that way; and the result is now, that a committee of the council saw the foolishness of trying to prohibit bees in the corporation; and when the council took a vote, they struck it out of the ordinance entirely.

Mr. Beitel makes a strong point; viz., in small corporations it is entirely useless to prohibit bees *inside* of the town limits, because those *just outside* of the limits can come in and do practically as much damage. Putting them outside of the limits does not help the matter. An ordinance that would prohibit bees from being *kept* within the corporation must also prohibit the *bees themselves* from *flying into* the city or town. As bees can fly from one to three miles, the utter foolishness of such a measure is apparent to even those who are not bee-keepers. The only practical way is to screen the windows, and put on a few bee-escapes, so that the few that do accidentally get in while the doors are open can escape.

ADVANCED BEE CULTURE: HUTCHINSON'S NEW BOOK.

As soon as it was announced that Mr. Hutchinson was to write a new book, I waited with no little degree of expectancy for its appearance. Accordingly, on the evening following the day of its arrival I sat down to read it; nor did I lay it aside until I had read almost every word of it. The book is well named. It is not only Advanced Bee Culture, but I think it is a little in *advance* of the times. From the nature of the subject, it does not go into details ordinarily sought after by beginners; but to a professional or old bee-keeper it is suggestive of a good many new kinks. Like its predecessor it is nicely bound in appropriate cover; but is larger, and contains 87 double-column pages the size of those of the *Review*.

It discusses its subjects somewhat in the order of the seasons of the year. For instance, the first subject considers the "Care of Bees in Winter;" the next, "Securing Workers for the Harvest," and so on until we get to "Sections and Their Adjustment on the Hives," and finally ends up with "Mistakes in Bee-keeping."

Like the A B C of Bee Culture it gives, in a condensed form, matter that has appeared from time to time in the bee-journal of which the author is editor. This lifts both works beyond the vale of personal observation and personal prejudices.

On page 15, under the subject of "Bee-hives and their Characteristics," the author says: "The times have not seemed to take kindly to inversion. Like many new things it was extravagantly praised; but it is far from being valueless." I agree with our author exactly; but I would add, with fixed frames inversion or reversing is feasible and practicable; but with loose frames, or, as Mr. Hutchinson calls them, "open-end frames," it is not practicable. That is, I mean the expense required to make loose frames invertible would more than offset the advantage gained.

In the chapter on "Bee-hives and their Characteristics." Heddon's new divisible-brood-chamber hive is given the preference; after that the Dovetailed hive with loose frames is given the choice. Mr. Hutchinson enumerates a number of good features in the divisible-brood-chamber hive—among them the shake-out function, and the readiness with which queens can be found thereby. I believe it can be done, but I have not been successful with it in our Heddon, neither has Mr. J. H. Martin, who, by the way, is an admirer (and was formerly a possessor of 100) of these hives. Said Mr. Martin, "This is one of the things claimed by Mr. Heddon that I can not make work."

In the same chapter on hives, Mr. Hutchinson, in speaking of fixed frames, says: "Closed-end frames are having quite a boom just now. Contrary to the belief of those who have never tried them, they can be handled *more rapidly* than the open-end frames."

On the subject of honey-boards, he thinks the slatted style will still be retained, in spite of the fact that thick and wide top-bars will probably rid the hives of the nuisance of burr-combs. The slatted honey-board has gone out of sale in our establishment almost entirely; and as it only keeps burr-combs from the sections, and still leaves them on the brood-frames, I could not be induced to use it after experiencing the great comfort of using wide and thick top-bars this and last summer.

Under "Sections, and their Adjustment on the Hive," Mr. Hutchinson prefers the old-style Heddon case for a non-separator arrangement, and the T super for those who prefer separators, or are obliged to use them.

Under "Varieties of Bees" he decides in favor of the Italians for extracting, and hybrids for comb honey. Of Carniolans he says: "I do not find the Carniolans any more gentle than the Italians; and they do run about on the combs in a reckless manner." A little further on he thinks they are worthy of a trial, but would want to test them three or four years before coming to a decision.

Mr. Hutchinson is at home on the subject of introducing queens. He, like myself, prefers the candy method, and corroborates what I have said in another column on the advantage of letting the bees release the queen quietly themselves, without any disturbance resulting from opening the hives.

Under "Shade for Bees" our author does not recommend evergreens, grapevines, and the like, but prefers an easily adjustable shade in the form of a shade-board, because shade is not needed in the spring and fall, nor in the morning and evening; and he adds: "For the comfort of the apiarist it is well to have a few scattering trees in the apiary; but let their branches be trimmed to such a height that they will not be knocking off his hat nor gouging his eyes." This savors strongly of experience of one who has "been there." I have had my hat crammed down over my ears, *a la* Miller, my veil torn. and occasionally a punch in the face, from a naughty twig that stuck out in the way. I might add further, that I experienced much the same inconvenience with grapevines, barring the cramming of the hat over the head.

In "The Use and Abuse of Foundation," Mr. Hutchinson covers the ground fairly and candidly; but I think he retracts some from the position he formerly occupied in his little book, "The Production of Comb Honey." But an editor who never retracts is one who should be avoided.

Under the subject of "Queen-rearing" Mr. Hutchinson is surely at home; and I know that the plans advocated there will work.

I have mentioned only a few of the subjects contained in the book, and only a thought or two from those. This book will very nicely supplement the work designed for beginners; and every apiarist who has more than a beginner's knowledge of the subject should certainly have the book. Price by mail, 50 cents postpaid. It can be had at this office.

E. R. R.

Queens! Queens! Queens!

If you want bees that will beat any thing you ever saw in every respect, try our strain of Italians. Warranted queens, each, 80c; six, $4.00; doz., $7.50. Safe arrival guaranteed. 13-14-15d

ORDER NOW, PAY UPON ARRIVAL.

JAS. & F. B. YOCKEY,
NORTH WASHINGTON, WESTM'D CO., PA.

☞In responding to this advertisement mention GLEANINGS.

Syracuse, New York,

IS A DEPOT FOR THE EAST FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

Don't buy foundation of us, for it would please you.

F. A. SALISBURY.

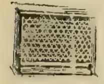
Our foundation is for sale by H. Alley, Wenham, Mass., and Model B. Hive Co., W. Philadelphia, Pa.
In writing to advertisers please mention this paper. 4tfdb

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.

If you want queens that are bred for business, send to me. See adv't in GLEANINGS of June 15th. Every queen warranted in every respect. Price 75 cents each.

JAMES WOOD,
11tfdb *NO. PRESCOTT, MASS.*

Please mention this paper.

ITALIAN 100 *QUEENS.*

Untested Queens, 60 cts. each. $6.00 per dozen. Now ready to mail. 9tfdb

H. Fitz Hart, Avery p. o., New Iberia, La.

☞In responding to this advertisement mention GLEANINGS.

EGGS! Brown Leghorn, White Leghorn, $1.25. Black Minorca, Plymouth Rock, Pekin Duck, $1.50. Light Brahma, Langshan, Game, $2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,**
1tfdb **St. Marys, Mo.**

☞In responding to this advertisement mention GLEANINGS.

J. W. Taylor's Fine Italian * * * * * * and Albino Queens for Sale.

Cheap tested Italian, $1.50 each. Tested Albinos, $1.50 each. Tested golden Italian, $2.00 each. Untested queens, 75 cts. each; $8.00 per doz. I guarantee safe arrival by mail. 9tfdb

J. W. TAYLOR, Ozan, Ark.

Please mention this paper.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; $1.20 for 500; $2.00 for 1000. A. I. ROOT, Medina. O

5-BANDED GOLDEN ITALIANS.

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones ⅓ to ⅘ yellow. Won **1st Premium at Ill. State Fair** in 1890. Nearly 300 booked for 1891. Warranted Queens, May, $1.25, 6 for $6.00; after June 1st $1.00, 6 for $5.00. Special discount for large orders as to dealers. Satisfaction guaranteed. No foul brood. Good reference given.

1tfdb **S. F. & I. TREGO, Swedona Ill.**

☞In responding to this advertisement mention GLEANINGS.

DISCOUNTS on all SUPPLIES!

All best improvements combined in hives, supers, etc. Special sizes made to order. Send for price list to OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.
12tfdb Please mention this paper

HONEY EXTRACTOR.

A NEW DISCOVERY. Differing from all others ever yet made for the purpose.

It works strong, thorough, neat, handy and rapid, and is the cheapest Extractor known. Send 2-ct. stamp for a circular of 18 pages to REV. A. R. SEAMAN, Connellsville, Fayette Co., Pa. 5-15d

Please mention this paper.

ITALIAN QUEENS.

Progeny large, and good honey-gatherers. Prices low. Send for price list. **C. M. HICKS,**
9-11-13d **Fairview, Wash. Co., Md.**

☞In responding to this advertisement mention GLEANINGS.

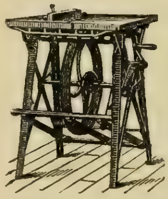
VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

Please mention this paper.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

Illustrated
HOME JOURNAL

30 Quarto pages—50 cents a year.

AN Elegant Monthly for the **FAMILY and FIRESIDE.** Printed in the highest style of the art, and embellished with magnificent Engravings. Sample FREE. Agents Wanted.

THOMAS G. NEWMAN AND SON,
PUBLISHERS
246 East Madison St., - CHICAGO, ILL.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of twelve years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 11 years, 505 queens. Circulars free.□ 13-14d

J. P. MOORE, Morgan, Pendleton Co., Ky.
Money-order office, Falmouth, Ky.

Please mention this paper. 7d

On Their Own Merits.

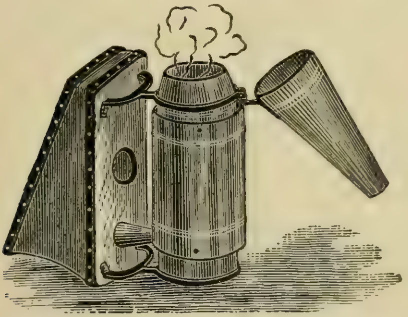
I am making a specialty of breeding **Golden and Albino Italian Queens.** My **five-banded bees** are equal to any as honey-gatherers, and they are the most beautiful and gentlest bees known. Warranted queens, May, $1.25; six for $6; after June 1, $1; six for $5. Satisfaction guaranteed. I have a few 3-banded tested queens at $1 each.

CHARLES D. DUVALL,
9tfdb **Spencerville, Montg'y Co., Md.**

Please mention this paper.

ITALIANS Tested queen, $1.25; Untested, 80c. Nuclei, brood, and bees by the lb. Send for price list.
MRS. A. M. KNEELAND,
9tfdb Box 77. Mulberry Grove, Bond Co., Ill.

Please mention this paper.



Smokers, Foundation, and all kinds of bee-keepers' supplies furnished at lowest cash price. If you want the best Smoker in the market get one of the Quinby old reliable—made the strongest; and although the first cost is more than that of any other made, the Jumbo is the boss of all. It has been used constantly in yards for 8 years, and still it goes. Send and get price list of Smokers, Foundation, Sections, and every thing used in the apiary. Dealers should send for dealer's list on smokers.
4-14db W. E. CLARK, ORISKANY, N. Y.

☞In responding to this advertisement mention GLEANINGS.

⁂THE CANADIAN⁂

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞Please mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Receipts of comb honey up to this date of the new crop can not grade as white, with few exceptions. Sales are small at about 17c per pound. Extracted quiet, as nearly all the offerings are off in color or flavor. Dark honey sells at 6c; white, 7; with a little fine clover occasionally selling at 8c. *Beeswax*, 28c. R. A. BURNETT,
July 7. Chicago, Ill.

SAN FRANCISCO.—*Honey.*—Stocks on hand of extracted and comb honey are very light. Small shipments of new crop of extracted are arriving. Season is late on account of the continued cold weather. We quote: White extracted, 6@6¼c; light amber, 5½@5¾; amber and candied, 5@5¼. Comb honey, nominal, 10@14; the latter price for 1-lb. fancy.
SCHACHT, LEMCKE & STEINER,
June 25. San Francisco, Cal.

DETROIT.—*Honey.*—New honey in light demand 13@15c. Extracted, 8@9c. *Beeswax* easier at 27@28c.
Bell Branch, Mich., July 8. M. H. HUNT.

COLUMBUS.—*Honey.*—Honey, if choice clover, sells at 15@16c. Dark not wanted; no sale.
EARLE CLICKENGER,
July 9. Columbus, Ohio.

ST. LOUIS.—*Honey.*—Demand for both comb and strained very light. We quote comb, choice white, 12@13c; dark, 10@12. Strained, in cans, 7@7½; in barrels, 5@5¾. *Beeswax*, prime, 26½c.
D. G. TUTT GROCER CO.,
July 8. St. Louis, Mo.

BOSTON.—*Honey.*—Best white comb honey, 16@18. Extracted, 7@9. *Beeswax*, 28. Stock on hand light; trade light. BLAKE & RIPLEY,
July 8. Boston, Mass.

KANSAS CITY.—*Honey.*—The new crop is very slow coming in. We have had few small shipments. Choice white 1-lb. comb is selling at 15@16c; no demand at present for 2-lb. comb or extracted. *Beeswax* 25c. CLEMONS, MASON & CO.
July 8. Kansas City, Mo.

NEW YORK.—*Honey.*—California honey is coming slowly; have bought some to arrive. Southern coming, and has a ready sale at 75@80c, according to quality. *Beeswax* selling at 28@30c. We shall handle comb honey this year on a large scale, having new outlets for the product.
THURBER, WHYLAND & CO.,
July 8. New York.

ALBANY.—*Honey.*—We have received one consignment of new N. Y. State comb honey. The quality is only fair clover, and some of it sold at 16c. There is but very little demand yet.
CHAS. MCCULLOCH & CO.,
July 10. 393-397 Broadway, Albany, N. Y.

CINCINNATI.—*Honey.*—Demand for honey is fair only, with a good supply of all kinds. This is the dull season of the year. Choice white comb honey brings 12½@15c in the jobbing way. Extracted honey 5@8c on arrival. *Beeswax* is of slow demand, with a good supply at 23@25c on arrival for good to choice yellow. CHAS. F. MUTH & SON,
July 10. Cincinnati, O.

FOR SALE.—3000 lbs. of comb honey in sections.
A. FIDDES, Centralia, Illinois.

FOR SALE.—I have a lot of honey in 60-lb. tin cans, two cans in a case, which I wish to dispose of. I have also comb honey in one-pound sections.
Write. J. D. ADAMS, Nira, Ia.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

WANTED.—2000 lbs. comb and 2000 lbs. extracted honey. Those having either to sell will please write me, stating amount, price wanted, how packed, and, if possible, send sample. Address
13tfdb S. RAY HOLBERT, Monongah, W. Va.

PASTEBOARD BOXES.

CRAWFORD'S SECTION CARTONS ARE JUST WHAT YOU WANT.

SEND FOR NEW PRICE LIST.

A. O. CRAWFORD,
11tfdb **SOUTH WEYMOUTH, MASS.**

☞ In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIAN QUEENS.

Our 5-banded Italians are giving perfect satisfaction; gentle, excellent workers, non-robbers, and the most beautiful bees in existence. Won first premium at Illinois State Fair in 1890. The judge said, "The drones are the yellowest I ever saw." Queens warranted purely mated; and replaced if they produce hybrid bees. One warranted queen, $1.00; six for $5.00; tested, July, $1.75; after, $1.50; selected tested, $3.00; breeders, the best, $5.00. A few solid-yellow warranted queens, at $1.50. No foul brood. Safe arrival and satisfaction guaranteed. Reference, our P. M. S. F. & I. TREGO, Swedona, Ills.

Please mention this paper. 1tfdb

OTTUMWA BEE-HIVE FACTORY.

We have a nice supply of hives in the flat, which we will sell as follows: The A. I. Root Simplicity, for extractor, $1.50; 5 for $7.00. Simp. for comb honey, with 2 T supers, sections, foundation starters, wood separators, and honey-board complete, in flat, each, $2.10; 5 for $10.00. Portico hive with Simplicity upper story, in flat, for the same price.

The improved Langstroth-Simplicity, in flat, eight-frame, 1½ story, each, 90 cts.; 5 for $4.00; ten-frame, 1½-story, each, $1.00; 5 for $4.50; eight-frame, 2-story, each, $1.20; 5 for $4.75; ten-frame, 2-story, each, $1.30; 5 for $5.25. Dovetailed hives, the same price as the eight-frame hives above.

SHIPPING-CRATES.

12-lb. crate, 11 cts. each; 16-lb., 13 cts.; 24-lb., 14 cts.; 48-lb., 16 cts. each.

Comb foundation.—Heavy brood, 48c; thin, 58c; extra thin, 68c.

Pound sections, snow-white, at $3.50 per 1000. No. 1, cream, $3.00. Bee-veils, cotton tulle, with silk tulle face, 75 cts. each. Bingham smokers at manufacturer's prices. Write for prices to 5tfdb

GREGORY BROS. & SON, OTTUMWA, IA. SOUTH SIDE.

☞ In responding to this advertisement mention GLEANINGS.

Positively by Return Mail.

After June 20th, we shall be prepared to ship our beautiful Golden Carniolan and Golden Italian queens by return mail.

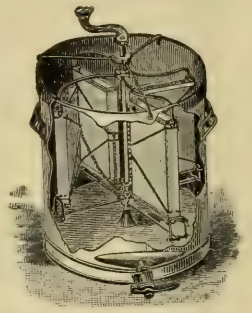
PRICES OF ITALIAN QUEENS.

WARRANTED.		TESTED.		SELECT TESTED.	
1 queen,	$ 1.25	1 queen,	$ 2.00	1 queen,	$ 3.00
2 "	2.25	2 "	3.75	2 "	5.50
6 "	6.50	6 "	10.00	6 "	15.00
12 "	12.00	12 "	18.00		

Golden Carniolan queens each $2.00.

If you rather see these queens before paying for them you can. Safe arrival and satisfaction promised in all cases. **HENRY ALLEY, WENHAM, MASS.**

Please mention this paper.



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB.
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

Bee-Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

☞ In responding to this advertisement mention GLEANINGS.

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
—Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

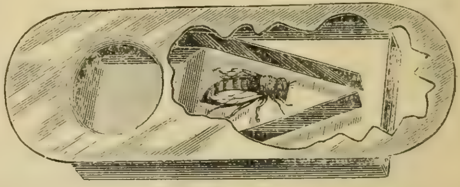
☞ In responding to this advertisement mention GLEANINGS. 6-4d

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



☞ In responding to this advertisement mention GLEANINGS.

A glimpse of our Factory, now making carloads of **Dovetailed** Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞ In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published by A. I. Root, Medina, O.

Vol. XIX. JULY 15, 1891. No. 14.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE BOOM IS on for extra-yellow bees.

WANTED. A plan to prevent swarming.

I WISH you could all see my bed of roses.

IS A ⅝ TOP-BAR thick enough? I'm afraid.

IN SPITE OF MYSELF, I like the Hoffman frame. Much.

HUTCHINSON sits up nights studying how to make his advertisements look nice.

WHAT SWEETER MUSIC than the roar of the bees at night after a hard day's work?

OUT-APIARIES require, you will find, some little difference in plans from home apiaries.

THE *A. B. J.* has gotten out a list of 111 bee-keepers' associations in the U. S. Big job.

HUTCHINSON'S NEW BOOK, "Advanced Bee Culture," is a fine specimen of boiling down. It's good.

THE *Review*, backed by Prof. Cook, says the Union ought to prosecute adulteration. The manager says no.

THE DETROIT *Journal* has been mulcted $500 for its little joke of giving a local habitation to the "Wiley lie."

EDITOR NEWMAN has done a nice thing by getting up a capital index at the close of the half-year of *A. B. J.*

"LET US BE ABLE," says Hutchinson, "to control swarming, and what would be the result?" Don't tantalize us with such conundrums.

IF ANY LADY or gentleman knows just why bees swarm, please don't be backward about coming forward, and speaking right out in meeting.

DO BEES swarm and stay swarmed without a queen? It scarcely seems possible, yet I have had two or three cases that I can hardly understand any other way.

SEVERAL TIMES I have found young queens in queen-cells wrong end foremost. They can't turn around in the cell, can they? Do the bees let them out, or do they die in the cell?

THAT SECTION-PRESS of Hubbard's is fine. But he ought to be prosecuted for making that boy in the picture stand up to make sections. I stand the press on the floor, and then sit a-straddle.

THICK TOP-BARS for me, if for no other reason than to keep them straight. I used to say that my ⅜ top-bars didn't sag, but that was because I didn't look close, and didn't realize how exacting the bees are about spacing.

A PROPHET in Tennessee sent me word that I should have a failure of white clover this year. I never knew the fields and the roadsides whiter with clover bloom; and the only failure just now that seems likely to occur is a failure to have enough sections ready.

SQUARE CELLS. Cowan, in "The Honey-Bee," gives an illustration of a piece of comb that D. A. Jones gave him, and the cells are nearly square. If Mr. Cowan's reputation for veracity were not so well established, I shouldn't believe bees had ever made such cells.

J. P. ISRAEL thinks the cause of the "dwindling" of all the defunct bee-journals is his writing for them. I didn't know before that he was so voluminous a writer. Try your hand on the *C. B. K.*, friend Israel. It certainly doesn't look very "dwindly" at present.

EMMA IS ENTHUSIASTIC over the latest Clark smoker. Whereas formerly her aprons were riddled full of holes from smoker sparks or coals, throughout the whole season so far she hasn't had the teenty-tointiest bit of a hole. I like it because she doesn't spend half her time cleaning it out.

SHADE. The other day Emma was working at some hives in the broiling sun, and I took a little boy's spade having a handle of the inconsistent length of five or six feet, tied an umbrella on the top of it, and then ran the spade into the ground. Works easily, can be changed in a minute, and is lots of comfort.

MANUM'S SWARM-CATCHER has been lying around for two years, and I didn't think it of much importance, having never had use for it. The other day two swarms came out that I feared had young queens, and I found the "catcher" a jewel. If I encouraged natural swarming, I should never be without one or more.

HAVE YOU TRIED raising queen-cells under a full colony with a laying queen? Put one or two frames with some eggs or just hatched larvæ into an empty hive; fill it up with dummies; set it under your full colony, with a cloth or a thin board between, of course not preventing the bees from going up, and see if you don't get queen-cells of first quality.

POLLEN IN QUEEN-CELLS I had considered as positive proof of a colony being hopelessly queenless. Several times, however, I have thought I met exceptions; and June 30 I found two queen-cells with pollen, in a hive having a good laying queen. The hive had been filled with foundation eight days previously, so the cells were made on the new comb built on the foundation, the colony not having been queenless this year.

QUEENS HATCH in how many days after the laying of the egg? Sixteen days is the orthodox answer. Thirty years ago it was between 17 and 18 (*A. B. J.*, Vol. I., p. 199). Cowan says 15. Will it come down to 10 in 30 years more? No, the bees have not changed. For if the work is done in a small nucleus to-day it may take 18 days; but if the egg is laid in a strong colony, and *left* there, during the season when bees naturally raise queens—in short, as queens *are* actually raised by the bees undisturbed—15 days is right.

GENERAL CORRESPONDENCE.

COMB FOUNDATION.

SOME STRONG ARGUMENTS FOR ITS USE IN THE BROOD-CHAMBER.

Friend Root:—This spring Goold & Co. established an apiary at the Homedale, and I think any one who would have looked through that apiary of some eighty odd colonies would have been a thorough convert to the use of *full sheets* of comb foundation in the brood-chamber. We were very busy for a time, and colonies purchased from all parts of the country, and all grades, from light pure Italians to black German bees, had their own way as to drone production, as far as the combs would allow them, and they made good use of their liberties. The time came when, for the sake of the young queens soon to be mated, undesirable drones had to be destroyed, and it was then we found how many there were. We trapped thousands and thousands of drones worse than useless to us, and in the production of which not only much valuable honey had been lost, but, if they had not taken the room, workers would have been reared, meaning another loss in the working force of the apiary. Italian colonies we allowed to rear all the drones their combs would allow, and some of these have so many drones I do not believe they will either swarm or store much in the surplus apartment. Why is this loss? Just because it was desired to effect a saving in comb foundation. But, was it a saving? Surely not. A little outlay in the beginning would have avoided this drone comb; and not for one batch of drones only, but for many. I think no one can point out a system of securing with certainty all worker combs. The bees will build worker comb until the first young bees emerge from the cells after swarming; then if they build at all they will build drone comb. Of course, we must allow for variations of a slight nature. But to tell a bee-keeper, and especially one of experience, that it is not expensive to use only starters, is, I think, a grave error in judgment. I say nothing about the many other arguments in favor of full sheets of foundation. There is only one instance in which I use starters; and that is, where I put swarms on them to get comb honey for exhibition purposes. I then sacrifice the comb for a special purpose.

I like Gleanings just as it is. If there were one wish I could have, it would be to have the honey statistics of Canada as well as of the U. S. R. F. Holtermann.

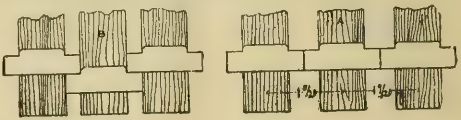
Brantford, Ont., Can., June 29.

[You have given some heavy arguments for comb foundation. Chalon Fowles says he can not afford to buy hives, but he can afford to buy brood-frames and foundation. Foundation he *must* have. In regard to statistics for Canada, if you Canadians will give a list of bee-keepers who will agree to report, and if it is agreeable to the officers of the United States Honey-Producers' Exchange, we will undertake the expense, and publish reports for Canada along with the others.]

FIXED DISTANCES IN ENGLAND.

THE W. B. CARR METAL ENDS.

In Gleanings of April 15 is an article headed "Objections to Fixed Distances." With reference to this matter, I have before written, advocating the use of W. B. C. metal ends, which allow of the frames being placed at any interval from 1¼ inches, center to center, to 1$\frac{9}{20}$. See diagram. As regards the question of moving bees with these metal ends, nothing could be more simple. Two strips of wood are laid (one at either end) across the ends of the frames over the metal ends; and where it is intended to move frequently, it may have a button to hold the strips; but when it is for only one removal, a screw at each end will be all that is needed. Then for the question of propolis: I never have frames glued real fast with the W. B. C. ends; but if I let the ends of the frames rest in a rebate, or rabbet, I am sure to have the frames so fixed as to be quite unable to move them without a lever of some sort. I have had no experience with a closed-end-frame hive; but I should imagine that it is a return to very primitive times, since Huber made a hive which was closed end all round, which is now known as "Huber's book-hive." The W. B. C. ends are not found to be in the way of the knife when uncapping; and, if owing to circumstances of which I have no knowledge, they were found to be so, they are removed without much trouble, simply by sliding them off from the end of the frame. I will inclose a diagram of the W. B. C. end, in different positions for wide and narrow spacing.



In England the W. B. C. end has whipped very nearly every thing else out of the market; and from the description of the Hoffman frame, I imagine that frames fitted with W. B. C. ends would answer in the hands of a novice quite as well if not better than the Hoffman.

EXCLUDER ZINC.

A great deal has been said about excluder zinc. I have lately seen a pattern of Dr. Tinker's excluder zinc, and find that the main and only difference between it and some that was described in the July issue of the 1888 *Bee-keepers' Record*, as made by Messrs. F. Braby, the design of which was stated to have been registered, is that the openings are a degree longer and narrower, and that Dr. Tinker makes his without any "burr." I like Tinker's pattern very much for its better finish; but when I have said that I have said all that I can see to be novel in its construction or design. I think Mr. West's cell-protector a very neat contrivance, and only wait opportunity to try one.

THE WATER CURE.

When I came to your own work, "Wash ye, make you clean," it reminded me that, as I had a very severe cold, I might get clear of it, as I had done on previous occasions, by going to George's Pier-head (salt water) baths, Liverpool, and have a swim. I did so on Saturday, and woke up Sunday quite free of it. My plan is, to dive three or four times, swim the length twice, and come right out and get dried (well rubbed), and then go and have something to eat. This acts much the same as Hill's "nasal douche," as, when under water, a quantity enters the nostrils, driving back the air till the head is again above water. I have never managed yet to get clear of a cold by a fresh-water bath.

With regard to "what is the matter with our Patent Office?" I may state that, in England, *our* Patent Office grants patents for the same thing (and does not pretend to make any search) to as many as like to apply; and it is only in the case of an "opposition" that the thing gets settled right off as to who is the "true and first inventor." It would seem as if your Patent Office were going to get on to the same lines.

HAROLD H. LINDON.

Liverpool, England, June, 1891.

[Knowing the tendency of your bee-keepers toward fixed distances, I have been watching closely what has been said on the subject. The W. B. Carr ends have always struck me as being good. I judge they are stamped out; but I notice the price is five shillings sixpence per gross, which would make about $1.65 in our money—something over a cent apiece. This would add two cents to the original expense of the wood parts of the frame and their use. Still, that price would not be prohibitory. The scheme for using wide or narrow spacing is very unique; but I do not suppose that it would pay a bee-keeper to change his hives over from season to season. But as there are a few who prefer 1½ spacing, or 1$\frac{9}{20}$, they can take the wider spacing with these metal ends, instead of 1¼, if they prefer. You say these metal projections do not interfere with uncapping. I believe you are right. In the main, I believe this objection has existed more in imagination than in actual practice.] E. R.

HANDLING HIVES INSTEAD OF FRAMES.

FRIEND GRAVENHORST SHOWS THE ADVANTAGE OF SO DOING.

Friend Root:—I was much delighted in reading GLEANINGS for May 1, p. 388, where I found a letter from Mr. A. F. Brown, and your footnote to it. Yes, you and Mr. B. have undoubtedly hit the point exactly; and never, I think, was a word truer than yours: "Sooner or later bee-keeping has got to resolve itself into the handling of hives more and frames less." You say further: "It may be truthfully said, that old bee-keepers do not spend the time they once did over their bees; and we think it is equally true, that, as our industry progresses, bee-keepers *as a class* to-day, or in the near future, will not spend the time over their bees they did a few years ago: in other words, they will get a thousand pounds of honey with less labor."

Now, friend R., let me tell you why I rejoice over your words. First, those words came from one whose name is known to bee-keepers all over the world; and because you fully know, I believe, what you are speaking of as an authority in bee-matters. Second, because I have fought for that principle to which you give expression in those words, nearly as long as I have kept bees in movable-comb hives. Descended from a family which was in the bee-business for generations, I kept bees at first just as did my forefathers in the old Lüneburgian straw skeps; and, I may say, with no less success than they. Our crop from 60 to 80 colonies, spring count, which were increased, by swarming and driving, to 180 or 240 colonies, was, in the best seasons, from 3900 to 6000 lbs. of honey, and from 50 to 80 lbs. of wax—a yield that is to this day not uncommon among our old-fashioned bee-keepers in North Germany, especially in the province of Hannover; and, what is the main thing, they get it at less cost of labor and time than bee-keepers do to-day with their movable-comb hives.

At the time I became well acquainted with Dzierzon's writings and with himself, I got some Dzierzon and Berlepsch hives, and kept bees in them by way of trial. But I soon found out something by this new method that did not satisfy me in contrast with the old one. In the course of several years I always got more honey and wax in the old-fashioned way, with my old Lüneburgian straw skeps than with my accurately constructed and skillfully handled Dzierzon and Berlepsch hives; and last, but not least, with undoubtedly less cost, labor, and time. What was the reason? Not taking into the account that the bees did not do as well in winter, nor thrive early in the spring in this frame hive, experience soon convinced me that the principal point was, that I could handle my old skeps instead of individual frames, and get a thousand pounds of honey with less labor. Of course, my experience would have prompted me to abandon the movable-comb hive totally had I been blind enough to misunderstand the great advantages of the latter. What was to be done under such circumstances, not to fall out of the frying-pan into the fire? All things considered, I thought: How would it be if you combine the great advantages of the Lüneburgian straw skep with the superiority of the movable-comb hive? This idea was strengthened by Dzierzon and Berlepsch. Both of them wrote at that time in their works as well as in the *Bienenzeitung* (*Bee Journal*), that, if it were possible to furnish the Lüneburgian straw skeps with suitable frames, there would be no better hive than such a one, in regard to wintering bees, rapid increase in the population of colonies in the spring, and, not least, easy manipulation; but the cylindrical shape and the arched top of the old hive would not permit this. All right, I thought; but, why not alter the shape and enlarge the hive to a moderate movable-comb hive? The result of my endeavor was the construction of a hive of which you will find some pictures in Dadant's Revised Langstroth. It is this: The old Lüneburgian skep with the arched top, only larger, and not in the shape of a cylinder; but by means of this it is furnished with 16 movable fixed frames, nearly as large as the Langstroth frames. Although Dzierzon, Berlepsch, and other prominent bee-keepers in Germany acknowledge the great value of this hive, it is adopted, with few exceptions, only by such bee-keepers as have kept bees in the old straw skeps, and therefore they know by experience the great advantages in handling bees by turning the hive over and manipulating the *whole hive*. On the other hand, this hive has met more vehement opposition than all others. But that is easy to understand. He who has never handled bees in the Lüneburgian straw skeps, especially in the rational way, like the bee-keepers of North Germany, can not have the slightest idea of the advantage bees may be handled with in such hives.

The greatest objection to this hive has been the inversion, or turning over, before one can manage the bees. But by doing it in the right way it is not a bit more troublesome than to take off a well-filled super from a Dadant hive. If you have those skeps standing on the ground (as is always the case in America), you do not have to lift the whole hive — only to turn it toward you. Let it first rest on the front edge, then on the front side, and at last on the top.

Now, I don't intend to urge any of my brother bee-keepers in America to accept *this* movable straw hive—no, not in the least. Their honey-market and other circumstances are different from those of Germany in more than one respect; and, besides that, I am fully aware that the hive used in America is the most suitable one for the wants of the American bee-keepers. But as there is nothing perfect in this world of trouble, and progress must take place everywhere, I am convinced that very decided progress will be put forward in that line which has been pointed out by you, friend Root, and by Mr. Brown—*handling hives more, instead of frames.* How this is to be done in the most suitable way, in your country, will, no doubt, be shown by American bee-keepers without any assistance from other countries. James Heddon has already taken a great step forward; and other steps of importance, to further your idea are, I think, the accession of the fixed Hoffman frames and the movable bottom-board.

After these preliminary words, let me explain in what way you, friend Root, and Mr. Brown have advanced a most valuable idea in the bee-keeping world by advocating the handling of hives instead of frames. You will allow me to describe this by referring to my hive, as I lay great stress thereon. American bee-keepers do not think ill of my hive; but I wish to convince them that it is not the production of the writing-table, but the fruit of careful experience, and such a one as has helped me to raise a crop of honey not surpassed by any other bee-keeper in Germany, unless by one of my disciples.

The handling of the hive, and not touching any of the frames, can be accomplished if the colonies are in a normal condition, as a colony will be if the bee-keeper did his duty at the close of the previous season, and the wintering was good. Of course, there will be exceptions to the rule; but of such I shall speak by and by. As for these colonies, the movable comb and handling of frames is of the greatest benefit. I handle hives: 1. After the first cleansing flight in the spring. I do not have to remove any warming materials, quilts, nor to open a door, as is necessary with side-opening hives. I simply turn my hive over, in the way before mentioned. This gives a most complete view of the interior of the hive, not limited by wide top-bars and thick honey-combs, or one single comb, as is the case with German hives. I see how many spaces between the combs are filled with bees, and how strong the colony is. No one will deny that an exact knowledge of this is of great importance every time. If the bees come up briskly from a compact cluster below, then I take it for granted the colony is not queenless. Should the bees not sit in a compact cluster, but more scattered between and on the combs, then the colony is most probably queenless. A few puffs from the smoker will drive the bees down. I now let the bright daylight in, and see whether there is brood in the comb or not; and then should I not see what I wish to, I push aside two combs from those in the middle of the cluster, and take them out of the hive to look after the queen or eggs. In the same way I find out how it is with the provisions, providing lifting the hive and weighing it in my hands has not told me what I wished to know. Finding all is right, as a good normal colony always will be, the whole task is done without handling any frames. In less than a minute the hive stands again in its old position—no replacing of a quilt or warming materials, nor a window; no loss of heat from the brood-nest, no tearing up of the nicely glued cover to cause a draft of air from the entrance through the cluster of the bees to the top of the hive. If not prevented by loss of time, there is no disturbing the bees by handling frames. To let the bees alone till a time of mild weather would not be judicious. The sooner I know the wants of a colony, the sooner I can help. I do not need more than three hours on the day following a cleansing flight, to know the minute conditions of hundreds and more of my colonies; besides having swept with a brush the dead bees and the cappings of the honey-cells from the floor board, saving more than four pounds of wax from a hundred colonies in this way. All colonies that need my further attention (and these are always a considerable part) get one, two, or three sticks on the front side, according as the brood-chamber is to be contracted, queenlessness is suspected, or stores are supplied. In these colonies, as exceptions to the rule, I do not avoid handling the frames; on the contrary, in such cases it is a benefit to help them by means of the movable combs.

I handle only the hives, to know whether a colony is on the swarming-point, or fit to swarm artificially. No one will deny that it is of great importance to know this. I simply turn the hive over, giving a few whiffs of smoke; and now, as the true workingplace of the colony lies open before me, I see whether queen-cells are started, whether there are eggs in them or larvæ, or on the point of being capped over, or have reached maturity.

All my hives have a space of from two to three inches beneath the small bottom-bars of the frames, as such a space secures a good wintering, and shows me whether a colony is ripe for artificial swarming, or whether I have to extract honey. As soon as I see, by simply turning over, that the bees begin to start combs beneath the bottom-bars, I know for certain that the colony is ripe for artificial swarming, or that I have to take out some capped honey-frames, and insert other full combs to be again filled with honey. You see, friend R., the chief point in most cases is to learn the true condition of the colonies, without handling frames, covers, quilts, doors, etc.

TO CONTROL COMB-BUILDING SWARMS.

Whether I have given only starters or full foundation, I must always strive to secure perfect combs. Without such combs, the movable-comb hive is nonsense, and more objectionable than an old skep or box hive. All my thousands of combs in frames are perfect—not crooked in any way, nor do they show any drone-cells where I did not allow them to be built. Therefore I have no more drones in my hives than I wish. A drone-trap is for me a useless thing, and not to be seen in my apiary.

To avoid faulty combs, one must have the easiest control of the comb-building swarms; and that is to be accomplished in the most complete way by turning the hive over. Then one has a view of the actual workhouse of the bees. *Here* is performed comb-building: and *there* is to be seen the busy life of the colony; here are hanging the wax-secreting and comb-building bees. A little smoke, and one sees the new combs built on the starters, or the finishing of the foundation. In most cases I remove the beginnings of drone-combs, and also regulate crooked combs by a so-called drone-knife—a hooked knife with a long handle. Of course, in some cases the drone-knife will not do all that is to be done to secure perfect combs; but then, one may handle one or two frames to do the rest. If I have before me a normal colony, or such a one as has worked according to my wishes, I need not handle a single frame. An inversion of the hive, a few puffs of smoke, a peep at the combs, an inversion of the hive to its normal position, and the work is done in less than a minute.

Now, friend Root, I could point out to you far more advantages in handling hives instead of frames; but it may be enough to show of what great importance your and Mr. Brown's suggestions are for the advancement of bee-keeping. As I have said before, I am of the opinion that American bee-keepers will themselves soon find out in what way this is to be carried out with their unsurpassed Langstroth hive; and I should be very glad to learn from them how they in future handle their hives instead of frames. C. J. H. GRAVENHORST.

Wilsnack, Germany.

[Friend G., we are obliged to you for your very kind and very valuable communication. It were no more than fair, however, to say, especially as Ernest is at present absent, that to him belongs the credit of the quotation you make. Notwithstanding, however, I emphatically indorse what he says. The glimpse you give us of the way in which you manipulate your hive is to me very interesting indeed, and I can understand now, as I never did before, why it is that you prefer such an arrangement. You have got accustomed to it, and the whole process is, as it were, at your fingers' ends; and then we must admit, as you explain it to us, that there are some very important advantages indeed in handling bees without uncovering the brood-nest at all. In fact, I remember many instances where positive damage has been done by some awkward manipulator in tearing open the top of the brood-nest during cool weather, and then leaving it only partially closed up again after he went away. Nay, further, I have seen colonies get the "spring dwindling" and actually die outright (in my opinion), simply by this kind of unseasonable and unreasonable tinkering. If we don't use the same kind of hives, friend G., it is comforting to know that we agree on general principles in the production of honey.]

DOTS ON QUEENS.

SOME QUESTIONS ANSWERED.

A correspondent says that he has a few Italian queens which have dots on them, like what we used to see pictured out some years ago, while the most of his queens do not have these dots. He wishes to know whether these dots are a sign of their purity; and if not what they do denote. I do not know that I am competent to tell just what they denote; but of one thing I feel quite certain, and that is, that they do not denote purity. On the contrary, I should sooner think that they denoted impurity, for I never had a queen which showed these dots that was a good breeder as to the color of her queen progeny. If a mixed race is desired, then such queens are as good as any; but if it is desirable that a queen should duplicate herself in her queen progeny, or come anywhere near it, then such queens would have to be discarded. That we may have hybrids of the best class, it is necessary that the breeding queen should be of good Italian blood, else we can not have good hybrids. Some seem to think that good hybrids can be obtained by breeding from hybrid mothers; but so far as my experience goes along this line, the best hybrids come from the first cross between the Italians and the blacks, or *vice versa;* hence we wish a good queen, as nearly pure as possible, for our breeding mother. Where queens have many of these black dots on them, they are likely to breed queens with black stripes, which, with the Italian bee, so far as my experience goes, always denotes quite a large amount of black blood. Again, the purity of a queen can not be told by her looks. Her progeny is what tells. Of course, if the queen is of equal value otherwise, a good-looking queen is to be preferred.

INTRODUCING VIRGIN QUEENS.

Another correspondent wishes to know how I introduce virgin queens which come to me through the mails. Well, I do not *always* do it; yet when I have suitable notice of time of shipment, so that I can prepare for them, I am nearly always successful. Young virgin queens, just hatched, can be introduced much more surely than those which are from two to six days old, as are those which come from abroad. I had an order not long ago for a dozen virgin queens; and after sending half of them, I was requested not to send more, as all had been lost so far; and this was from one of our most noted queen-breeders. Not long ago I saw, in the *Canadian Bee Journal*, something from friend Jones, on this subject, in which he said that all should know how to introduce virgin queens, or something to that effect; but after reading carefully all that was said on the subject, I failed to find how to do it explained. There are two ways to do this with oldish virgin queens, and *only* two ways, that I know of. The first (and, as I consider it, the best plan) is, to make a colony queenless for from four to nine days before the introduction is tried, then drop the virgin queen in honey, looking out that she does not fly away in getting her into the honey, after which she is to be rolled in the same, and, with a teaspoon, dipped up and turned down between two frames from the top of the hive. If the colony or nucleus has been queenless long enough to have sealed queen-cells, not one in ten will be killed, providing said colony does not desire to swarm, no matter whether the queen-cells in the hive are destroyed by the apiarist or not. In fact, as a rule I prefer not to destroy these cells, for the bees seem to rather let the virgin queen do it. If they have a desire to swarm, the virgin queen will generally be killed in spite of all precautions.

The other plan is, to take all the combs out of the hive where you wish to put the virgin, placing the queen in a cage having Good candy in one end of it, to an amount sufficient to take from 12 to 20 hours for the bees to eat through to her. By this time they know that this queen is their only hope, so will accept her, but the combs and brood must be kept out of the hive till she becomes fertile; for if put back sooner, the bees will often kill her and raise another from their brood; and they will often kill her if only combs having no brood are placed in the hive within 48 hours after the bees have liberated her. I consider the introduction of virgin queens as impractical, only as we wish to do it as a means of changing "blood." If Bro. Jones makes it practical, will he please tell us *in detail* just how he does it?

USING OLD COMB FOUNDATION.

"A year ago I put some foundation in both brood-frames and section boxes. Will it answer to use the same this year?" is a question asked by another correspondent. Well, now, I should like to say to every one who has a similar question to ask on any subject, you can tell just as well as any one; and all you have to do is to try and see. I have hundreds of questions asked me which I answer by saying, "Try it, and that will tell you." Any thing which you can try and prove for yourself, just as well as not, with little or no cost, don't run off to some one else with; for after you have tried it you will have a knowledge regarding it which will be of more value than a dozen answers to the same question. In trying these things always do it on a small scale; then if it is a failure, little harm will result; and if a success, you have plenty of time to try again more largely. Then if it pleases you, use the whole apiary in the same way if you desire, with no fear of a heavy loss. G. M. DOOLITTLE.

Borodino, N. Y., July, 1891.

[I am inclined to think the dots on the queens are mostly accidental, although I agree with you that they are much more likely to appear on a queen that has black blood. We have several times given our opinion that it did not pay to buy or sell unfertile queens. If one could be sure of getting them, the day they were hatched, either in the hive or some kind of nursery, they might prove valuable; but when it comes to trying to introduce those that are several days old, our experience is exactly with you.

This matter of answering our own questions has much truth in it; yet as long as these questions, when asked through a journal, tend to start discussion and bring out a variety of experience, I think to a certain extent they should be encouraged.

We, as a rule, see but little difference in foundation that is put into frames or sections a year before. Sometimes it seems as if there were a difference; at other times not, so that circumstances have probably much to do with it.]

BEE-ESCAPES—THE PORTER, PERFECTION.

JOHN S. REESE, THE ORIGINATOR OF THE ESCAPE, DECIDES IN FAVOR OF THE PORTER.

The writer, who claims to know something about the working of escapes, has now in actual use a number of Porter's spring escapes, and takes pleasure in stating that they are working perfectly under all circumstances; and the rousing big colonies clean themselves out of the supers just as quickly and perfectly as any of the smaller colonies. A Reese horizontal escape (which is very nearly perfect), worked side by side with the Porter, was badly left, as it were; and the Porter will be used in the Highland Apiary exclusively, in the future. These escapes have been left in place on top of strong colonies for several weeks at a time, and the bees seem to make no effort to plug up the springs with propolis—a very nice little vent-hole for these warm days. It seems absolutely impossible for the bees to return to the supers through the springs, so what better should we want? and it makes very little difference now who invented the bee-escape, since we have a cheap and perfect one. The most of us know who first published the principle, even if friend W. Z. H. and his big brother did laugh; the July *Review* will change its tune.

Why is it the proprietors of bee-journals don't make a thorough test or trial of the new inventions as soon as they know about them, and give their readers the benefit? It seems as if it might pay them to send an expert to the birthplace of any thing that promises good results, where they could see for themselves.

Winchester, Ky., June 29. J. S. REESE.

[Friend R., your unselfish impartiality in deciding that the Porter bee-escape is away ahead of your own is commendable, not to say praiseworthy. Would that there were more of this candor among inventors. In regard to the bee-journals testing these new things, and giving a report of them, if you will refer to our volume of last year you will see that we tested the Porter bee-escape in our own apiary, and gave a report to the effect that it was the best bee-escape, and the only one that would rid the supers of every bee; and now the reports are coming in, thick and fast, that the Porter is a grand success in every way. The Porters certainly deserve the thanks and hearty patronage of bee-keepers for giving us a perfect bee-escape. But there is a great deal of credit that should go to J. S. Reese for popularizing the idea, although there were one or two who preceded him in the use of cones for getting bees out of the supers of comb honey. Those to whom I refer are A. E. Manum and H. R. Boardman. There is still another man who deserves much credit for helping to popularize the escape, and that is our friend of Milan, Ill., Mr. C. H. Dibbern. Now that we have a perfect bee-escape, whether there is a patent or not we hope no one will attempt to make them except the Porters. It requires considerable mechanical skill to make them perfect; and the Porters so far have given us something that is very neat, and which accomplishes its object admirably.]

E. R.

THE PORTER BEE-ESCAPE IN CALIFORNIA.

J. F. M'INTYRE GIVES HIS EXPERIENCE WITH IT.

The following is a communication sent to the Messrs. Porter, and has been by them forwarded to us, at the request of Mr. McIntyre. We are glad to publish it entire.

Messrs. R. & E. C. Porter:—I have tried your bee-escapes under various conditions, to see what they would do, and will now submit my report. In the first place, it is far superior to any other bee-escape which I have tried, and I have tried several. Being positive in its action, it will finally clear the bees out of any super, no matter how large. I find that the length of time taken to clear a super of bees depends on the kind and number of bees, and the size of the super. A T super full of comb honey will be cleared of bees in about five hours. Extracting supers with small frames like Heddon's or Dr. Tinker's are cleared nearly as quickly, say in six hours. With a full-depth ten-frame Langstroth super it takes much longer—from 12 to 24 hours, owing to the number of bees in the super. The bees seem to be more contented to stay in a large super, or else they get discouraged trying to find the way out, and give it up. Our nights are always cool here, no matter how hot it is in the day time; and if the escapes have to be left on over night, the honey gets cold, and does not extract so well. I shall use your escape to take off what comb honey I produce, and brush the bees from my extracting combs as before, while I use Langstroth supers.

Fillmore, Cal., June 23. J. F. MCINTYRE.

OVERSTOCKING.

APIARIES TOO SMALL RATHER THAN TOO LARGE FOR A LOCALITY.

Mr. Root:—There has already been a great deal written on this subject; but, of course, from the nature of the case little in the way of conclusion can be arrived at. Even recorded experiments are often misleading, because there are so many things that modify results. However, as I am very fond of reading the thoughts and experience of others on this subject, I will offer some of my own, hoping it may prove interesting to some, and awaken more thought on the subject.

My location, until the fall of 1888, was at Ainsworth, Ia.; and in the season of 1877 I thought I did exceedingly well when I got 900 lbs. extracted honey from 12 colonies, spring count, and increased to 25 colonies. In the spring of

1882 I had 60 colonies. I increased to about 100, and got 6000 lbs. extracted and 1000 lbs. comb honey. In the spring of 1886 I had 150 colonies; increased to 184, and got 19,500 lbs. extracted honey.

From the foregoing it will be seen that I got the largest *pro rata* yield when I had the largest number of bees. Of course, the larger amount of bees did not augment the *pro rata* yield, but, rather, it was my better facilities and management. But I always noticed that, when bees did well anywhere in that region, mine did as well or better, and I was utterly unable to see that my *pro rata* yield was at all affected by the number of bees I kept.

Since I removed to this place, bees have done very poorly until this season. Last season nearly all in the country died of starvation, but it was no worse in large apiaries (of which there are very few) than in small ones. This season honey is quite plentiful, and all are doing well. Of course, it is possible to overstock a given location; but when the area of honey-producing flowers is large, the apiaries may as well be large; for poor seasons do not so greatly lessen the area of pasturage, or the number of flowers, as the amount of honey secreted in each little floweret. I think that bee-keepers oftener underrate the capacity of their locality than otherwise. Suppose a square mile of white clover would yield one drop per day to each square foot of land. That would amount to about 1600 lbs., or 11,200 lbs per week. Of course, this estimate may be far from correct; but has any one ever overstocked a good white-clover locality in an average season, and how many did it take to do it? From what I have seen and known of the yield from white clover in that part of Iowa where I lived, I should feel safe in keeping at least 200 colonies in one yard, and I should not be surprised if the number could be still further increased. The question is still occasionally asked—

"ARE DRONES FROM A MISMATED QUEEN PURE?"

I should say no—not any more so than the workers. Fifteen years ago I had about twenty-five colonies of blacks and one Italian. I raised lots of drones from the Italian, and suppressed those of the blacks, and requeened them all with young Italians. About two-thirds of the queens were purely mated; but as I was informed that the mismated ones would produce pure drones I let them raise them the following season, when I was astonished to find that very few of my queens raised that year were purely mated. After that I suppressed hybrid drones, and then could get about 90 per cent of the queens purely mated. Some say that

DRONES FROM A MISMATED QUEEN LOOK AS PURE AS ANY.

They don't to me. I can see that peculiar dusky luster of the black drone on some of the drones of a mismated queen, quite as often as I can see a black worker among her workers. But it still remains true, that drones from virgin queens are potent.

One season I had a number of hybrid colonies which I undertook to Italianize late in the season. I raised a lot of Italian drones late—after other drones were all dead—and then placed Italian queen-cells in each of the hybrid colonies; but before the queens got mated the weather turned cold and remained so all winter; and in the spring all of those queens were drone-layers. As soon as I discovered that, I killed them; and when the bees started queen-cells I grafted them with larvæ from an Italian colony, and thus raised about 12 queens very early—before my bees had any other drones than those from the virgin mothers. These queens all showed pure mating, and it must have been with these drones, for there were no other Italian bees but mine in that vicinity. I thought I could notice that the queens laid a little irregularly at first, but could see nothing else remarkable about them.

BEE-ESCAPES.

I am pleased to see those improvements in bee-escapes coming forward. There are many good hives already in use. Now, if we had a perfect non-swarming race of bees should we not have things pretty much our own way? and would not those "hundreds of thousands of tons" of honey that Mr. Clute used to talk about be in sight pretty soon?

By the way, why don't some of our enterprising queen-breeders get up a strain of bees that will never swarm, but just stay at home, and work and behave themselves generally as bees should? I believe it can be done, and will be, even if I have to do it myself. I am surprised that the readers of GLEANINGS do not all know

HOW TO STICK LABELS TO TIN WITH HONEY.

Some years ago I read in GLEANINGS that a little Orleans molasses added to common paste would make them stick; and as I had none of that I put in a little honey, about a teaspoonful to the pint of paste, and found that it answered the purpose perfectly, and I have used it a great deal. T. W. LIVINGSTON.

Dalton, Ga., June 18.

[There may be some localities that would easily support 200 colonies, but they are few. We are pretty well satisfied that our home yard has been for years overstocked. Why? Because smaller bee-keepers starting up around us soon decided that their bees didn't make enough surplus to pay them to keep them, and now every one here has given up the keeping of bees so near us. We have from 150 to 250 colonies, from fair to strong, in our locality, on the average. We do not run for honey, but for bees, and so overstocking is not as serious with us as it might be.—Yes, it is possible to do something at a non-swarming race of bees, if bee-keepers only concentrate their attention on the matter long enough. If the same thought and painstaking skill were put upon a non-swarming race of bees that there is put upon five-banded bees, we should have something practical instead of something that pleases the eye; but it's easier to breed for color than for a non-swarming propensity. It takes a whole season to tell whether the bees of a queen are non-swarming, or but little inclined to swarm; but it needs only about a month to determine the number of yellow bands on the bees of a certain queen.] E. R.

OUR CHINA LETTER.

FRIEND WALKER GIVES US SEVERAL GOLDEN RULES.

Friend Root:—Last week I saw a carp that measured 37 inches in length, and was said to weigh about 18 lbs. It was a wild one, which had just been caught in the river. Last winter I spent a Sabbath at a mountain village where they had a score or so of pet carp in a small pond just below a spring that supplied the village with water. The carp were a foot or more in length, and a few of them were of a bright yellow, like goldfish.

Last week I also saw a dead leopard that measured 47 inches in length, exclusive of its tail, which was 31 inches long. It was a magnificent sight. It was some distance south of here that I saw it. Now, my chair-bearers are quite anxious that I should not travel after it begins to get dark. One of them said to me, "That's what we are afraid of at night. He won't hurt any one by day; but at night he will crouch by the road and pounce on the passer-by."

And now permit me to say a few things to the boys—yes, and the girls too, who read GLEANINGS. When I was a boy I never could keep a knife. Once when I had earned money and got a new knife I spoke about this to a man who had a knife which he had kept for years. He replied, "Never lay your knife down, and you will never lose it." I followed his advice, and kept that knife a whole year. Then one day I forgot it, and it disappeared, never to be seen again. It often seems a bother to stop to shut up a knife and put it in the pocket, when I expect to use it again in a minute; but it is really a great convenience, for I never have to waste one second in looking for my knife. This man gave me another good rule: "Never whittle toward you, and you will never cut yourself." This rule is not so easy of application as the other, but it does make a difference.

Another trial to me has been in making mistakes in writing; and the worst of it was, that, the more I felt vexed about it, the more likely was I to blunder. I read last year about a man who, from being very forgetful, grew to be famous for never forgetting; and he acquired the habit of remembering in this way: When he found that he had forgotten any thing, he went right off and attended to it, no matter how inconvenient it might be. This put me on the track of a rule by which I might overcome this infirmity of blundering. Now when I write I have a bit of paper handy; and if I make a mistake I stop at once and write the word or phrase over and over several times. It is making a decided difference.

I have begun to wear specs; and for a while I was much bothered by a habit of laying down my spectacle-case, and then having to hunt for it when I took off my glasses. I adopted the plan of going through the process of taking off and putting on the glasses, and putting the case in my vest-pocket several times, whenever I found that I had forgotten and laid the case down. Now when I want either case or glasses, they are right there in my vest-pocket.

One thing more: I find when I have mislaid a thing, and have to hunt for it, it always helps to pray about it. Two weeks ago I wanted to lock up the house and go away; but, lo! my keys were missing. I flurried around a minute, then stopped and said, "Lord, you know what I have done with those keys; please guide me to them." In an instant I recollected that there was a little matter that I had forgotten to attend to in a room which I usually keep locked. I went to attend to it, and there were my keys in the door. When we humble ourselves to acknowledge that we need God's help in *every* thing, we receive that help in every thing. God has put into this universe such an order that there is a right way of doing every thing. It is marvelous how little we can do by mere strength or by force of will if we do not work in the right way. But more marvelous still are the wonders performed by those who patiently seek out the right way. "If ye be willing and obedient, ye shall eat the good of the land."

Shaowu, China, April 29. J. E. WALKER.

[Friend W., I want to thank you for the simple suggestion in your last paragraph. Perhaps some may smile to think of praying over a matter of so little moment, but in many of the varied trials that I constantly meet in giving orders to so many people every day in my life, I have never found any help like the one you mention. When overburdened with cares and responsibilities, if I have the presence of mind to stop and meditate, and breathe my simple prayer, "Lord, help," a break in the clouds comes sooner or later, and I get a glimpse of his loving care. Yes, it has been for *years* that I have prayed for guidance in hunting for tools, or any thing else that was making trouble. Oh, if the boys and girls, and the readers of GLEANINGS in general, old and young, could only learn this lesson of faith in prayer! And another thing that comes in with it, is this: We must be living good, honest, straight, pure lives, or we have no right to expect our prayers will be answered. "If I regard iniquity in my heart, he will not hear me." So you see such a habit of prayer is a great safeguard against giving way to evil.] A. I. R.

RAMBLE NO. 42.

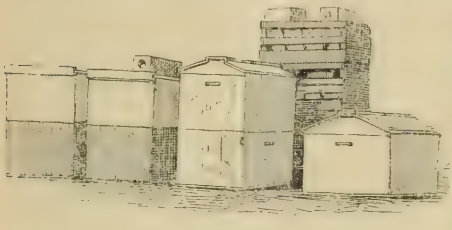
IN WASHINGTON, D. C.

It is said that every true Mohammedan is bound to visit the tomb of his prophet at Mecca at least once in his lifetime. So I believe that every true American should visit the national Capitol at Washington. To view the city from which so much of our national history has emanated, and walk the streets that, in all the past, have in their time reëchoed to the footsteps of our great men causes the blood to flow with more patriotic fire, and gives the citizen a resolve to do his little toward making a government for the people instead of for the favored few.

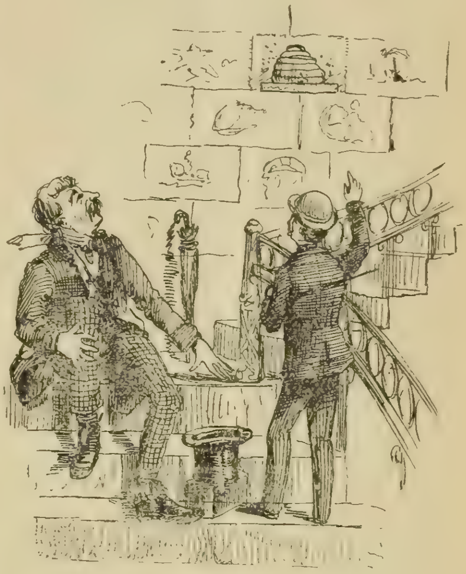
The Rambler, being greatly favored by the force of circumstances, was not a little surprised to find himself in the national Capitol on April 7th last. I left the cold and cheerless atmosphere of my northern home, where now and then a good amount of snow could be seen, and the accompanying shiver could be felt, and found here the green grass, the budding trees, and the fragrant magnolia coming into bloom. The change was invigorating; and all the eye saw and soul felt could not be properly put upon paper.

Washington is of interest to the bee-keeper, for here have centered the hopes of thousands of bee-keepers; and as their papers for a patent were issued from the Patent Office, it has been received with reverence as the stepping-stone to fortune. How few have realized that fortune is well known to the fraternity! Still, we are not one of those who would destroy our patent system, but believe that, under its fostering influence, the inventive faculty has been stimulated as under no other system. Our belief was greatly stimulated by the testimonials of hundreds of inventors who, at the time of our visit, were celebrating the centennial of the Patent Office. Their words were full of meaning when directed to the past 100 years, and still more pregnant with prophecy when directed to the future. The celebration will greatly strengthen the patent system. Mr. Callamer is at the head of the bee-hive department, and is thoroughly posted upon all matters pertaining to bee culture. I think he made the remark, that no patent that had been granted upon bee-hives had been successfully overthrown. Mr. Callamer has been in the Patent Office for 25 years, and patents on hives and fixtures have been quite numerous; but at present there is a decline in quantity.

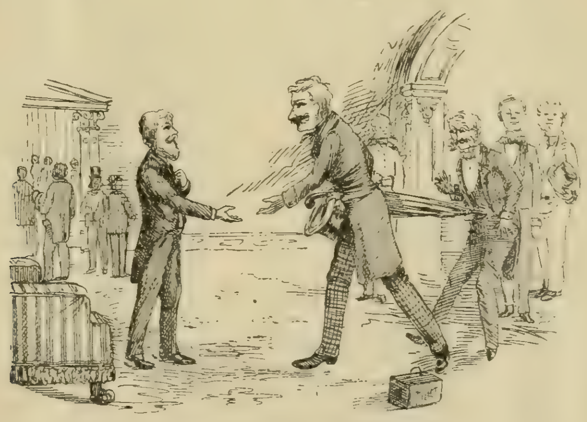
There are a few bee-keepers in the city of Washington and suburbs. The most enthusiastic of these is Mr. F. Danzenbaker. Mr. D. will be remembered by the readers of GLEANINGS as the inventor of the Dual hive, and the first to use the Dovetailed corner. He has given his hive and system much thought, and thinks he has it about to the point of perfection. Certainly it works well in his climate, and there are many points in the hive that accord with the Rambler's experience, and other points that must be tested. The making of the hive of thin lumber, both inside and outside cases, and using a paper packing, are improvements in the right direction. The use of thick top-bars to the brood-frames, a $\frac{3}{16}$-inch bee-space, and a heat-retaining cover at all times, gives the best results we ever saw in relation to the building of brace-combs and daubing of propolis. A 4½x4½x¾ section is used upon this hive, and Mr. D. claims that such a section sells better than any other in his market. His apiary proper is in Virginia, on the Blue Ridge, 60 miles from Washington, and in one of the best honey-producing regions of the country. Mr. D.'s system of taking comb honey is a little different from late methods. His clamps look like the old-style 12-lb. box, but this box of very thin veneer contains the sections. Three clamps are placed upon a hive; and as the center one is filled first, it is removed to the outside when nearly full, and an outside one placed in the center, and so the relation continues through the season. The hives and frames are made to fit to the hundreth part of an inch, and every little detail has been carefully worked out by the inventor. The hive is not so well adapted to the production of extracted honey as for comb. Mr. D. is one of those men who believe that our honey crop can be and should be wholly produced in the shape of beautiful comb. The hive can, however, be modified to suit the demands of the honey-extractor. Mr. D.'s city apiary was of small dimensions, and is located in the basement of his house. He lives in a beautiful residence on K St., fronting one of those beautiful Washington parks. The real-estate business now largely occupies his attention; and from the amount of property the sale of which he was negotiating while I was in Washington, and the profits arising therefrom, the Rambler was inclined to think that, while the bee-interests had a strong hold upon him, there are but few men who would hang on to a business that is profitless when compared to the more profitable line of work. But the secret probably lies in the fact that Mr. D. entertains Senator Peffer and Pres. Polk, of the Farmers' Alliance, and is in cordial sympathy with their views, and is in some fear of too soon becoming a "bloated bondholder." Mr. D. believes that the farmers should rule this country, instead of the aforesaid bondholder, to which the Rambler is ready to say amen.



DANZENBAKER'S DUAL-HIVE APIARY.



AN INSPIRATION.



A SHAKE WITH THE PRESIDENT.

A stroll through the markets of Washington revealed the fact that it was quite bare of honey. Mr. Hoops, a bee-keeper, had a market stand, and sold much honey. Samples of alfalfa honey were shown; but the quality was somewhat inferior, and had a taste of New Orleans molasses. Mr. Fish, also, had a stand, and had sold 3000 lbs. of honey. A peculiarity of this market over any other is the custom of cutting out the comb from the section, and placing it in a paper box. If the section was fitted to the edges it was seldom cut out; but if partly filled, or there were a few empty cells, the customers stood by and saw it cut out and weighed. Mr. Fish also sold pickles and sour-kraut, so we see the extremes meet—the sweet and the sour. Fashionable turnouts were around the market all the morning hours. It is the custom here for the fashionable and wealthy people to do their own marketing, and it is no uncommon thing to see the wives of cabinet officers in the market, selecting their produce for the day.

I might take much of your time in describing the many interesting things I saw in Washington, but I will forego the temptation at present, with the exception of one incident—the climbing of Washington Monument, 500 feet. This was an arduous journey. At the height of about 300 feet weariness overtook the Rambler, and he was about to give up when Mr. D. pointed to a bee-hive carved in stone. That gave us a new inspiration, and the journey was finished with vigor. The stone bee-hive is the coat of arms of "Deseret," and I hope it will inspire many other bee-keepers who travel this road.

The meeting with President Harrison was very cordial on my part. I expected he would say something about the McKinley bill keeping out queen-bees, but he said not a word—didn't even ask about our postmaster. There was nothing cordial about his shake—just a grab, and a hint to get along so as to give him a chance at the next fellow. My umbrella interfered a little with the proceedings, and the big prize-fighter at the right of us began to work his muscles, and I bade Pres. Harrison an affectionate good-by. These shakes for a second presidential term do not please the Rambler.

NUBBINS.

FROM PROF. COOK.

Please ask Dr. Miller to wait a little before he comes to take lessons on the rearing of queens in the Doolittle cups. Our last gives eighteen good capped cells and eight destroyed. In some cases all, or nearly all, were destroyed. Our students are now trying the Doolittle method. They have some success.

The Chapman honey-plant is a fraud. Our plants, self-sown two years ago, are weak and of little account. We have two fine fields of rape and three of sweet clover. Our Rocky Mountain bee-plant has failed again. This plant will never pay to plant, except to throw about in *waste* places. This should be done in August or September, to secure the best results.

I am not a chemist, but have no doubt that beeswax can be distinguished from either ceresin or paraffine. Not only is the composition somewhat different, but the texture and strength are not the same. We shall soon have these matters (purity of honey and wax) worked out by our Experiment Station. We are only getting a good ready. I wish some Wisconsin bee-keeper or some other would furnish me some basswood honey, say two pounds, where the honey was gathered very rapidly—say 15 or 10 pounds per colony in a day. I have special use for it.

Our reversible frames are not working well. The bees are filling in on the sides below with honey. They never did this before. "One swallow does not make a summer."

The honey-dew is coming from several trees. Lice are very common, and the secretion equally so. Bee-keepers must look out.

I should expect no harm from eating poisonous animals like *centipedes*. Even the venom of the rattlesnake or copperhead is harmless if taken into the stomach, though deadly if injected directly into the blood.

We, too, are among the fortunate ones, for Rambler is spending the "Fourth" with us. As he comes from so many bee-keepers it is like a visit from the whole fraternity. A. J. Cook.

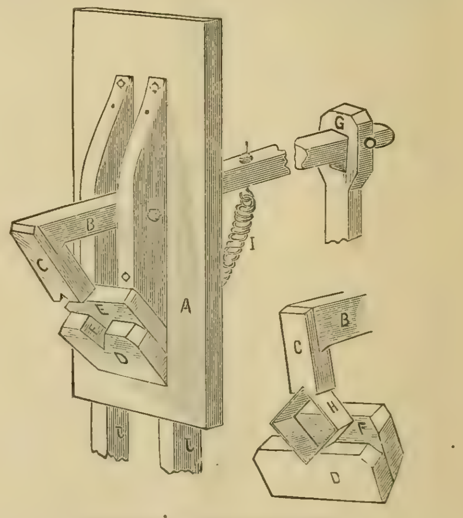
Ag'l College, Mich., July 4.

[There, friend Cook, I am very glad indeed to have you come right out and pronounce the Chapman honey-plant a fraud, so far as raising it for honey is concerned. You know I stood almost alone in objecting when it was first lauded so highly; and I don't know but I incurred the displeasure of many of my best friends in so doing. The same is true with the Rocky Mountain bee-plant; and just think how certain catalogues have boomed it!—Tell me when your rape and sweet clover are yielding honey at their best and I will come and see them.—Your caution in regard to honey-dew is well timed, and there is great need of looking out.—I am glad to hear you say that centipedes are not poisonous when eaten by accident; but I infer that you have had no such case come under your observation.]

KUEBLER'S SECTION-FORMER.

ANOTHER WAY OF DOING IT.

To-day I send you a model of a section-press worked by the foot. I made one the same as the model a few weeks ago. I have put up a lot of sections with it since. It worked admirably. If you find the press has any advantage over other presses, will you please describe it in Gleanings for the benefit of our brother bee-keepers, as the press is easy to make? I have kept bees over 15 years, and have taken Gleanings for a number of years. I know how much trouble it is to put up a lot of sections with the hammer. The press can be bolted to a bench or table. Conrad Kuebler.



KUEBLER'S SECTION-PRESS.

Calamus, Ia., June 12.

[We had our engravers make a picture of

your model. The engraving is so complete that a description is almost unnecessary. It has, no doubt, advantages over some others that have been illustrated. These section-formers are of the greatest assistance, and are vastly better and more rapid than the mallet or hammer.]

E. R.

HONEY-DEW, AGAIN.

BUGS AND BEETLES.

Mr. S. E. Miller, Bluffton, Mo., sends me leaves of walnut, hickory, and oak which are thickly covered with plant-lice. He says these latter secrete so much honey-dew that the bees fill their hives in a week or ten days. He wishes to know whether they will continue to secrete the nectar, as he would like to make up in quantity what this lacks in quality. Mr. Miller sends one louse with wings, and asks if this is the mature louse. The plant-lice are very thick this year. I find our bees are working on the same trees (hickory, walnut, and oak) that Mr. Miller's bees are finding dripping with nectar. From my correspondence I think this year, 1891, will be known as the "honey-dew" year. The honey here, as yet, does not seem to lack in quality. We have never had on our table honey that pleased us more than some we have just received from our apiary. True, it is mainly white clover, but not all. There is a flavor about it that is superb. Of course, I can not say that that comes from this aphis secretion, but I think it must, as I can conceive of no other source.

The winged lice are no more mature than the wingless, or apterous, ones. There are several generations of plant-lice in a season, and they increase so rapidly, and are so ruinously destructive to the plants on which they live, and from which they suck, that, were they not able to migrate, they would soon destroy all vegetation on which they feed, and then die themselves. But their strange natural economy prevents this total destruction of plant-lice and their own suicide. After a few generations there comes a winged generation which flies to pastures new, and thus their lives are preserved. Sometimes they go to an entirely new plant, as the plum-louse goes to the hop, and the grape-root louse to the leaves.

Mr. M. asks how long the lice will remain. This, no one can tell; for no one can tell of their enemies. Sometimes parasites will destroy the lice in a few days. Just now a little braconid fly, *Aphidius granariaphis*, is destroying the myriads of wheat-lice, so that the latter, despite their rapid increase, will soon be almost exterminated.

As I have said before, bee-keepers should be very watchful of their honey, and see that no serious harm comes from it. If good and wholesome, it is all right; if strong and rank, it should be kept from the sections or any good honey that may be in the hive.

THE BEE-STABBER.

Mr. Wm. C. Peterson, Canaveral, Fla., sends me a fine large bug of which he wishes to learn more through GLEANINGS. Of it he writes: "I caught it with a honey-bee on its long proboscis. The bee was dead, and Mr. Bug was walking off with it as demurely as you please. I have seen one other with a bee which was captured while I was looking at it. The bug stabs the bee, which causes almost instant death."

This is in substance what Mr. P. writes about this bee-killing bug. He speaks of it as a beetle, which is a mistake. All beetles have thick wing-covers, called "elytra," which sheath the under wings. In bugs, only half of these upper wings are thickened; hence the name of the bug order, *Hemiptera*. Again, beetles have strong jaws which move sidewise, so a beetle bites much as would a turtle, only the jaws do not move up and down. On the other hand, a bug has a beak, or proboscis, which is strong, and used to suck. Thus a bug does not bite—it stabs and sucks.

This bug is described and illustrated in my Bee-keepers' Guide, p. 422, where I call it the "bee-stabber." The scientific name is *Euthyrhynchus Floridanus*. I also illustrate the strong four-jointed beak, which looks no more cruel than it is. The bug is about half an inch long, purplish or greenish blue in color, with yellowish or reddish orange spots. I have had this bug from South Carolina, Georgia, and Florida. The name indicates that it was first discovered in Florida. It certainly does much good in killing noxious insects; and I hardly think it should be condemned for its attack on an occasional luckless bee.

I have a fine large black ground-beetle, received from Mr. S. W. Taylor, Harveyville, Pa. Mr. T. says he found this culprit actually engaged in the act of carrying a live bee out of the hive. He has courage at least. This belongs to the great family of ground-beetles, *Carabidæ*. Nearly all are black. They are quick, have long legs, and so are good runners; and, when alarmed, seek to escape danger by running rather than by flight. They live in the ground, or under stones, logs, under bark of old trees, etc. They are all predaceous, both in the grub (or larval) and imago (or mature) stages. Thus they do immense good in killing cutworms, white grubs, etc., etc. This one rather oversteps the bounds of genuine usefulness; but from the generally good reputation of the family, the courage of this one, and the fact that even he doubtless did far more good than harm, makes me slow to condemn him. I think this is the first record we have of a carabid beetle preying on the honey-bee. Who will discover and send on the next rarity? A. J. COOK.

Agricultural College, Mich.

WHAT TO DO WITH WEAK COLONIES IN THE SPRING.

A SHORT CUT IN BUILDING THEM UP.

Perhaps my method of handling the swarming business will be of some use to some of the readers of GLEANINGS whose bees will persist in swarming, and who find their crop of honey curtailed by the same. Unless the season is an exceptional one it does not pay to build up weak colonies in the spring, at the expense of the stronger ones. Let them get what brood and bees they can; and when swarming commences, hive the first swarms in these, saving the queens, which introduce into the colony from which the swarm issued, next day. The three or four combs of brood, supplemented by a couple of combs of foundation, will usually be very acceptable to the swarm, and the work-bees will be a valuable addition. Put on the sections, and your honey crop will be scarcely diminished. Introduce the queen in 24 hours, after removing all the cells and smoking bees thoroughly, by turning her loose on the combs, and this also will soon have a full working force again. After all weak ones are treated in this manner, hive the next swarm on the old stand on half the brood-combs and the rest on foundation, or empty combs. Put the brood taken out where it will not chill, and hive the next swarm that issues with this *swarm*, catching the queen as she runs in, and return her and the brood taken out to the hive from which her swarm issued. If she should not be caught as she enters the hive, she will usually be found balled on the bottom-board inside of the hive, where she is easily caught. All who have hived two good swarms together during a honey-flow know what honey they will gather with their enormous stock of workers, while the stock to which the queen is returned and brood given will be a rousing colony again in a few days—one that may store a large amount of honey. By this method a comb of brood can be taken here and there for forming nuclei. It does away with the after-swarm nuisance; prevents all increase, keeps all colonies strong and with a laying queen, and scarcely if at all diminishes the surplus. After the flow is over, weed out all poor queens. Bees are booming at date.

Baptistown, N. J., June 18. W. W. Case.

[Friend C., there is certainly wisdom in your suggestions. In fact, where one does not want increase, and has quite a number of weak colonies, I do not know of any better way of managing.]

BEE-ESCAPES AND CLOSED-END FRAMES.

CLOSED-END FRAMES IN A TIGHT-FITTING CASE NOT PRACTICABLE, AND WHY.

In my last article in Gleanings, page 510, I said that bee-escapes did not work with me. Since that time I have received some of the new Porter spring escapes. I used them nearly every day during a month or more in comparison with the Dibbern and Reese escapes; and now my opinion on bee-escapes is entirely changed. If the Porter escape is adjusted to a hive, the super will be practically freed of bees during the night, every time, if no brood is in the super. In fact, many times I had not a single bee left in the super.

To work quickly with the escape-board, we give the super with the just extracted and now empty combs at the same time, when the escape is adjusted to the hive in the evening. All unnecessary lifting is avoided thereby, but we need an extra set of supers with empty combs. If two hands work together, one lifting the supers while the other sets on the empty super and the escape-board, the whole work takes very little time. The supers to be extracted can be taken off at any time during the day, when they are needed.

In out-apiaries it is somewhat more difficult to use the escape-boards with advantage, and I do not know as yet of a practical way. To adjust the escape in the evening, removing the supers in the morning (the best plan for the home apiary) takes two different trips to the same out-apiary; and a few hours in the morning are not sufficient to free the supers of all the bees. As yet I use in my out-apiaries something similar to Dr. Miller's escape-tent, but made of wooden framework, and covered with wire cloth.

My opinion is now, that the Porter escape will very much lessen the work of taking off honey. This escape is much ahead of all others, because no bee can get back into the super. Even if some brood is there, the most of the bees will escape, except quite young ones, which never leave the brood, and which can't take wing at all. These young bees, if brushed through a funnel into any box, will be accepted by any colony, and can be used to strengthen small colonies or nuclei.

On page 543, Mr. Lester Judson and you (E. R.) say that closed-end frames in closely fitting hives are not a practical success, at least not in a hive as deep as the Dovetailed hive. I used these frames and hives this season, at first opposed to them; but I prefer them now to hives with swinging frames or with Hoffman frames. You have given no reasons for your opinion, and I can't see any. I can handle these frames quicker than the common hanging frame, and as fast as the Hoffman frame, and kill no bees. If in some years the propolis will not make any trouble, and many apiarists of reputation, among them yourself, say that this will not be the case, I will not use any other frame; that is, if I need fixed frames. So far my experience with these frames and hives leads me to the idea that the new Heddon hive may not be so bad after all, and very probably I shall try some of them next year.

What a queer change of opinion! About a year ago I was opposed to these frames, and you told us of their great advantages; and now I have got used to them, and found out their advantages, and you say, "They are no practical success." L. Stachelhausen.

Selma, Tex., July 8.

[I felt quite certain that you would reverse your opinion when you tried the Porter escape. Its conception is a great stride in advance; and the conservative bee-keeper who *won't* try it or *won't* make it work is going to lose something.

Regarding those closed-end frames, I see you do not quite understand me. They are a magnificent success as used by Hetherington and Elwood; but when they are used in a tight-fitting box I have my doubts about them. Frames as shallow as the Heddon will work, I know; but when we increase the depth of those same frames we encounter a difficulty. Did you never have a bureau-drawer stick or draw out by "hitches"—that is, catch on one end and then on the other? Well, if you never did it is because you live in a climate so dry that bureau-drawers don't swell with moisture. I trust you see the application. Closed-end frames in a tight-fitting case must not have a play of over ⅛ inch, or more than 3/16. Why? If more, the space will be great enough to roll bees over. If ⅛ inch is just right, what is the trouble then? It can't be maintained in most localities, on account of moisture; and, besides this, unless there is *perfect accuracy* of workmanship the frames won't go into the hives. Those we sent you, and others, we made with great care, knowing its importance; but because these frames would be put in other hives than our own, and because of the shrinking and swelling in many localities, we felt that we could not conscientiously continue to recommend them. Let there be a variance of even ⅛ of an inch in the length of the hives, and there is trouble. Among the supply-dealers there are some who do not work to the same gauge in Langstroth size of hives; and add to this some inaccuracies of manufacture, and you will see the point. Now, *if* all L. hives were of *exactly* the same length, and *if* wood would not be affected by dampness, I think there would be no fixed frame equal to the closed ends in a tight-fitting box. When all the conditions are right their manipulation is pretty, and they would kill no bees.

I will add one more word about this swelling. Last spring, when we took our Heddon hive from the cellar (a dry one) the end-bars and the ends of the hives had been so swelled that the frames were immovable. After it had been outdoors, exposed to the sun for a while, there was no trouble. For the benefit of Mr. Heddon I will remark that I don't think there would be serious trouble with shallow close-fitting frames if the climate is suitable. You see, the point is here: The deeper a close-fitting frame is, the more there is of that tendency to "hitch" in pulling out the frames, as was explained in the case of the bureau-drawer. The only satisfactory way to use deep closed-end frames is to have them *a la* Hetherington.] E. R. R.

A REPORT OF TWO QUEENS FROM IMPORTED STOCK.

EXPERIENCE OF A BEGINNER.

Last summer I bought two untested queens of you—one in July and one in August. They both proved to be purely mated, both good; but the one received in August was extra good. I have raised 20 young queens from her. They are all as large or larger than she is, and two of them are the largest, finest-looking queens I have ever seen. Are the largest queens always the best?

The two received from you came after the honey-flow had passed. I had to feed the colonies they were introduced to. They came through the winter all right. From the 10th of April to the 15th of June I took 7 frames of capped brood from each one of these Italian colonies, to reinforce blacks; and although I have drawn so heavily from them they have built ten Simplicity frames of new comb, and filled them full of honey. I think if I had taken no brood from them they would have filled three Simplicity stories—ten frames each—chuck full.

The first two queens I raised were out before I had any Italian drones, and they are now two magnificent colonies of hybrids. I have never used a veil, and don't often use a smoker; but I think these hybrids will bring me to it. I went one morning to hoe some weeds down in front of one of their hives before the bees got to stirring. The hoeing woke them up, and they were getting excited. I was anxious to get the weeds out of the way. I made a big lick to get the last weed (there was a little stick in the way), and the hoe glanced and struck the corner of the hive. Then they poured out. I was bareheaded and baldheaded to boot. One got on top of my pate, one on my ear, and one got his business end in contact with my proboscis (it was big enough before); several got tangled in what little hair I had left; several more in my beard, and I made a very undignified retreat. If I had been in reach of a veil, oat-sack, or one of Miss Emma Wilson's aprons, I would certainly have wrapped my head up. By the way, I owe Miss Wilson a vote of thanks for her plan of putting foundation in frames—GLEANINGS, page 466. I owe Dr. Miller several votes. I have several good ideas from him; Doolittle and others too.

The Italian bees are a long way ahead of the blacks.

PACKING FOR THE SOUTH.

I like your idea of chaff packing. Friend Jenkins says, in his catalogue, that "chaff hives are not necessary in the South;" but I think it pays to pack bees up snugly for winter, even here. The strongest colony I had this spring was a swarm hived in a large soap-box last June. The box was turned bottom up on a plank laid on the ground. In October they were packed up like a heap of potatoes, except a little passage for them to come out. They were not fed nor disturbed till they were transferred in April. They never felt the cool nights. Most of the others standing out in the yard were weak. They had been fed too. The soap-box was booming without any feed.

Fayette, Miss., June 26. I. N. BEDFORD.

[Largest queens are not necessarily the most prolific, though they are usually regarded so.]

THE HOUSE-APIARY, AGAIN.

THE POSSIBILITIES OF THE BEE-ESCAPE.

Permit me to say a word from my experience with the Reese bee-escape placed in the bee-house, as you will observe by referring to page 990, 1889. After reading E. R.'s short experience in this line on page 561 (1891) I am not surprised at the facts he has given. I have often wondered why it was that persons abandoned the house-apiary. Well, since reading E. R.'s article I presume there was good reason; and as I have always used the escape, and never had any inconveniences from bees in the house outside of the hive, it ought to be a good reason why I thus pondered over the problem.

I have frequently seen articles condemning house-apiaries, and I frequently thought of writing you for the reason; but, thanks to E. R. for the explanation. I want to say that any one having a house-apiary can, by putting in a two-inch hole, with the cone bee-escape just over each hive, henceforth continue to call blessings down upon the inventor of that most valuable gift, the bee-escape, to the bee-fraternity.

In my article on page 990 I did not say any thing about inside manipulation. I have an abundance of light from a revolving window in the south end, sufficient to catch a queen, see eggs, or for any work; also blinded when not at work. Of course, I use a spring blind. To be handy, the ventilator, or escape, above, carries the smoke away at the roof; and the cone escape—why, it's just grand. Put them on over a three or four inch rim, and the crate on top in the evening, and in the morning no bees, or scarcely any, are found in the crate. If any, they are quite young. Yes, the escape works tiptop in the house, and I want to predict the most pleasant manipulation of bees you have ever enjoyed in your life. If you thus arrange your house-apiary, however, you must not forget to have plenty of light while manipulating or looking for queens and eggs. The spring blind is the handiest, and most convenient in working the house-apiary. I use so little smoke one would hardly perceive it, and the ventilator draws it away when you are not using the smoker. One thus working with the house-apiary does not or can not know what robber bees are to a certainty—at least, that is my experience. J. A. GOLDEN.

Reinersville, O., July 10.

COMB SOMETIMES PRODUCED WITHOUT LOSS.

RUNNING OUT-APIARIES ALONE.

Several days ago I noticed a colony hanging out some. It was not a very warm day, and they were under a tree, so the sun did not strike them except for a short time in the morning. I did not have time to look after them until late in the afternoon. By that time there was a fair-sized swarm hanging in front. I found the upper story full, and no signs of swarming. I took out half of the combs above, and gave empty frames instead. They went in, and by next morning had several good-sized pieces of comb, and they built those frames full in a very short time. Now, I think if I had given them foundation, or extracted the combs and returned them, that wax would have been wasted; and that, under such conditions, wax is involuntarily produced. I find, during fair weather or a good honey-flow, by keeping about two empty frames in my upper story for extracting over good colonies, I get about as much honey as though they were not building comb, and they seem much better contented —not so liable to swarm, and I have the combs to help fill the upper story of new swarms.

I read friend Manum's article in April 15th GLEANINGS with much interest; but I am afraid he will get "stuck," or perhaps some one with less experience will try to follow the same plan with his out-apiaries, and will get so much on his hands that he will pretty emphatically wish for some help. A little of my experience may illustrate one difficulty that may come up. This spring I have my home yard and a yard four miles away. I planned to visit the out-yard once a week, and divide every colony that showed any sign of swarming. My home yard built up very strong, and swarming commenced. All went according to plan for a while. Then the weather got so that, for some days, the bees could work only an hour or so; this continued several days, bees swarming all the time, as there was plenty of honey when the bees could work. Of course, with my two yards and some one to stay at home, I did not lose many. One cool day after working at the out-yard, I got home after dark and found my wife had three swarms clustered together on both sides, end, and bottom of a two-story hive, while the day had been so cool that bees had worked only during the middle of the day. Then we had a cool spell of four days, with frost three nights. The first and fourth days the bees flew some; the second and third days, the yard looked like winter—hardly a bee stirring, as there was a cold north wind; and on the fifth and sixth days swarms issued. Now, if I had had more than three yards, even if I depended on dividing, I must have lost more or less swarms, as the weather would not permit of working with them, though the swarming-fever kept up.

IS THERE DANGER OF FERTILE WORKERS?

In making colonies hopelessly queenless to prevent swarming, I should be afraid of fertile workers taking possession; and a colony without queens, or means of rearing one, is of very little account for work with me; and this I am afraid would be a greater loss than to raise bees by having a queen with them, though it may work all right in certain localities.

Port Orange, Fla., May 11. JOHN B. CASE.

PROSPECTS POOR IN MISSOURI.

HEDDON'S SHAKE-OUT FUNCTION, AND HOW HE DOES IT, AS TOLD BY ONE OF HIS STUDENTS.

We have no honey yet—too wet and cool. Bee-men around here are wearing long faces, but hope basswood will yield. All we shall need, I think, is good weather. The trees seem to be loaded down with buds. Mr. L. W. Baldwin says there's only one chance in ten of getting any honey from basswood. His brother Phidel says this is the 10th chance. I really hope it is. But this is the fifth year I have been here, and I have yet to see much basswood honey—that is, any thing like the way it yields in New York; so you see our main dependence is white clover; and when that fails we are "up a tree."

GETTING USED TO A THING.

Friend Ernest, you are just talking when you quote about "getting used to a thing." Will you please allow one of Mr. Heddon's students to just inform you how Mr. H. would proceed to shake the bees out of one of his shallow brood-chambers? For instance, if he simply wants to find the queen, he seldom shakes them at all—just lifts the cover, and gently puffs a little smoke down the frames, then lifts off the brood-chamber, and, in the majority of cases, the queen is on the bottom-board; if not, gently shake them over the bottom, and the queen will drop off, as she is heavy, and can't cling as well as the workers. But when shaking out of the extracting supers you want to shake them "allfired hard."

When I came here to work for Mr. Phidel Baldwin, in 1887, they all used a mouth smoker —merely a tin tube, with corn silk for fuel; but he bought a Bingham "for me;" but when I bought bees in the fall, and started for myself, I offered to take the Bingham off his hands; but, no; he had "got used to it." Since then I have got so used to the mouth smoker that I use it considerably. Strange, isn't it? Perhaps Mr. Heddon will remember who it was who wrote in an article a few years ago, that "the man who *never* changes is a humbug." I used to laugh continually at Mr. P. Baldwin about his side-opening hives, and now I think he has nailed every one fast. "Don't want a hive to tumble to pieces when he picks it up." But I am thinking of making my hives side-opening.

S. A. UTLEY.

Mt. Washington, Mo., June 20.

[There; I am glad you have told us about that shake-out function. I shall try it again, for you have given me a new idea on the method of shaking. Yes, for extracting supers I should think you would have to shake "allfired hard." Say, don't you use side-opening hives or you will regret it, as they nearly all have done. Use a hive a trifle wider, and then pull out the follower to get the "function" of a side-opener.]

E. R.

LADIES' CONVERSAZIONE.

RECORD-BOOKS.

HOW DR. MILLER KEEPS THEM.

You ask, Mr. Root, for some information in regard to the way we keep our record-book. Now, I have been wanting to write on that subject. I can hardly see how any one who has many bees can get along without a record-book, and I haven't the least doubt that others who keep their records by means of slates, bricks, etc., can't see how we get along with a record-book. I think the first remark Mr. Root made was something like this: "Suppose you lose your book." We replied, "Yes, but we don't lose it. We never lost one yet." In the first place, the book is rather large to lose easily; and, secondly, it is so constantly in use that it has not much time to get lost, as we take the same book to each apiary. We could not get on very well without it.

Some one may say, "Suppose you forget it when going to an out-apiary. What would you do then?" Well, we might have to go back after it. But to avoid the possibility of such a thing, we have in the back of our book a memorandum of such articles as we might wish to take with us, such as hats, chisels, smokers, shavings, etc., and have made it a rule that that memorandum must be read after we are in the wagon, ready to start, to make sure that nothing is left. Of course, we must have the book to read it, so the book can never be forgotten. I don't think we should ever get very far without it in any case, as Dr. Miller usually reaches for the book before we have gone far. Then he looks over the record for the whole apiary; and by the time we get there he has our day's work planned. Those colonies that must surely be seen to are done first; then in case a shower comes up, or any thing else interrupts, the most important ones are done.

We can pick up our record-book, turn to any colony we have, whether in the out-apiaries or at home, and tell the condition of affairs, and it is often very handy to be able to do this. For instance, suppose you have a number of queenless colonies in one of your out-apiaries, and extra queens at home; all you have to do is to take your book, find out how many queens are needed, put them in candy-cages, and take them with you.

One advantage the book has over other methods is, that you can refer back five or ten years, as we keep all our books. A great deal of our planning and deciding what to do with our bees—in fact, the most of it—is done away from the hives, at a time when we are not able to work, and our record-book is most faithfully studied.

In making our records we abbreviate as much as possible. I will give some of the abbreviations used; *cl q* (clipped queen); *dqc* (destroyed queen-cells; *eg* (eggs present); *svq* (saw virgin queen); *gybr* (gave young brood); *t2br & b* (took two frames of brood and adhering bees); *8br* (the colony has 8 frames of brood); *sqc* (sealed queen-cells); *keg* (destroyed eggs in queen-cells); *qh* (queen hatched), etc. You can readily see we take very little space for our records—very little time to make them or read them. Our book is about 12x6 inches, contains 180 pages, and costs 25 cents. You hardly need so large a book; but it is very nice to have a few pages for miscellaneous entries, such as date of first clover-bloom; when bees were taken out of cellar, etc. It makes interesting reading in later years. EMMA WILSON.

Marengo, Ill., July 6.

A PROTEST FROM ONE OF OUR WOMEN-FOLKS.

Friend Root:—I have a crow to pick with you. I don't think you half treated us right in your answer to the complaint on page 517. You have there made it appear to the readers of GLEANINGS that no one can send queens by return mail unless he charges a dollar—or, no one but *you* can do so. Now, I have sent over three hundred queens this season, and all have gone by return mail when requested. You have overthrown our advertisement, and still we have you to pay. I can send queens by return mail at 50 cents just as easily as you can for a dollar, as long as they last. But, of course, I should not make as much; and at the same time my queens could be just as good as yours. I hope you may see the point, and correct it.

JENNIE ATCHLEY.

Farmersville, Tex., June 27.

[Well done, my good friend Jennie. I suppose you see that, by publishing your letter, we have redeemed ourselves from a large part of our charge, for we have given you a tiptop advertisement; and if you have filled all orders by return mail when so requested, you have done better than anybody else I know of in raising queens. If you will refer again to what I said in regard to raising queens for less than a dollar, you will notice that it is not quite as you state it. In fact, your own statement above settles the question. Queens can be raised so as to make it pay, for only 50 cents each. Hold on! your experience does not prove that a *man* can do it, but only that a *woman* can. Now, then, if our queen-breeders do not look out we shall be in a tight place. The only point I wished to make in what I said was this: That there is no advertisement in the world that can equal prompt habits in business; and I judged that the reason why we had so many orders while we charge a dollar, was because of our promptness in shipping. One of our mails comes from the office, and is opened after four o'clock; and the mail train passes our doors at 5:15. Well, we manage nowadays to pick out all the queen orders from this four-o'clock mail, and get queens on the train at 5:15. It makes us skip around lively to do it, and I am afraid that I sometimes "yank on the lines" a little when the queens there on the table do not go off on this evening train. If I have inadvertently not treated any of our advertisers right, I shall be very glad to correct it.] A. I. R.

HUMBUGS AND SWINDLES

A FRAUD.

Brother Root:—I wish to call the attention of your readers to a fraud or swindle. It is the Kaweah Coöperative Colony, of Kaweah, Tulare Co., Cal. It is being advertised considerably all over the U. S. as well as in England and Germany, and other countries. I have recently thoroughly investigated its workings and management, and do not hesitate to brand it as a base swindle. Many of its members have put in one hundred to one thousand dollars, and one to five years' work—hard work—and can not get a ten-cent meal out of their "time-checks." I have a host of plain facts and figures—reliable documents and indisputable evidence—which I will gladly give to you or any other publishers who will give the space in their columns. To one and all, I say, don't be misled by their scheme. If you do you will surely lose your money. All inquiries cheerfully answered. J. G. GILSTRAP.

Last, Fresno Co., Cal., July 1.

[That is right, friend G. Show them up. In these times, when there is so much truth in the familiar saying that "farming does not pay," and when a good many other things, by the way, do not pay either, it seems a little sad to think of the amount of money that is scraped up to support blacklegs and swindlers. The Bohemian-oats fraud is pretty well killed out; but the same spirit is not killed out by any means; and pretended co-operative institutions are being worked all over our land to swindle those who can be drawn into them. It is well, as a rule, to be careful about investing in any new enterprise that suddenly springs up, especially if it has a high-sounding name. Several things of that sort have recently been worked in our own community. One in particular claimed that everybody who put in his money could get from 12 to 15 per cent interest, and they went through a lot of figuring to demonstrate to an absolute certainty that there was no possible hook or crook about it. The absurdity of such proposals ought to be plain to every reasonable man or woman. Put it in this way: If they can pay 12 to 15 per cent interest, why in the world don't they go and get money at from 6 to 8 per cent? Well, they have a sort of excuse to make by saying that their business is planned to "help poor people." By the way, friends, you had better give a wide berth to any new enterprise that proposes any thing of the sort; and if you have money to invest, put it into the hands of somebody whom you know personally—some one of undoubted integrity.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 189. *I am a farmer with no knowledge of bees. Is it better for me to buy my honey or to keep one or two colonies of bees and raise what I need?*

If you could give them the proper care, keep the bees by all means; if not, buy your honey.
Ohio. N. W. H. R. BOARDMAN.

It is the easiest job in the world to buy, providing one has the money. But a good farmer should buy nothing which he can raise.
Ohio. S. W. C. F. MUTH.

If it is for the sake of honey only, then buy it. If to this you can add a special liking for the care of the bees, then keep the bees.
California. S. R. WILKIN.

If you have a liking for bees, and are not afraid to handle them, we would advise you to keep some instead of buying honey.
Illinois. N. W. DADANT & SON.

If you will read and study the matter it will pay much better to keep the bees, especially if you like such work and study, or have children that do.
Michigan. C. A. J. COOK.

If you *will* buy what your family need, you'd better do so; but if your family like honey and you *won't* buy it, you'd better keep bees, that your family may be supplied.
Vermont. N. W. A. E. MANUM.

If your experience is like that of three-fourths of those who propose to keep only a few bees for their own use, undoubtedly you could buy honey cheaper than to raise it—if you would.
Illinois. N. C. J. A. GREEN.

Very much depends upon your location, your qualifications for farming and bee-keeping, how large your farm is, and other things. Usually you will make the most money by letting bees alone.
Michigan. S. W. JAMES HEDDON.

As honey is usually sold for less than it costs to produce it, it will be cheaper for you to buy it unless you make a better bee-keeper than a majority. You are probably pretty confident that you will be one of the successful ones.
New York. C. P. H. ELWOOD.

Keep bees to fertilize the fruit-bloom, and provide your family with the choicest sweet known. Many farmers go without what they do not produce. It is a hardship for a farmer to buy any thing to eat.
Illinois. N. W. C. MRS. L. HARRISON.

This will depend upon yourself. If you are willing to invest in a good book treating on the subject, and study the way of caring for bees, it will pay you to buy one or two colonies; but if you wish to buy them and let them care for themselves, then it is better to buy your honey.
Louisiana. E. C. P. L. VIALLON.

That depends. If you have a liking for bees, and the spare time to attend to them properly, get the bees, by all means. If, on the contrary, you have no special liking for them, and you are crowded for time during the summer months, you had better by far buy your honey.
New York. C. G. M. DOOLITTLE.

It is seldom that a farmer keeping one or two colonies just to get enough honey for his own use ever has any on his table. It is better for him to purchase a liberal supply for his family, of some good and worthy bee-keeper.
New York. E. RAMBLER.

Buy your honey. It won't pay to fuss with one or two colonies of bees. If you try to supply your family in that way you will likely go without the honey. The price of a few bushels of grain, or a small pig, will pay for your honey, and no bother on your part.
Wisconsin. S. W. E. FRANCE.

In most places it would pay you best to buy the honey. There are localities, however, where a few bees, half tended and half neglected, will hold their way from year to year, and frequently furnish a fine lot of honey. If other farmers like yourself do well with their bees you may safely follow suit.
Ohio. N. W. E. E. HASTY.

If your liver is all right, and you like honey, and kinder like the little critters, and are not afraid of their business end, why, get some bees and raise your honey; but if you don't care for much, and the stings poison you badly, and you are afraid that they will sting your blooded horses, you had best buy what little honey you want.
Wisconsin. S. W. S. I. FREEBORN.

If you are enough interested in bees to take fairly good care of them, it will be better to keep enough to furnish you honey. If you expect to have them "work for nothing and board themselves," you'd better buy your honey and save your time, money, and temper. But it might result, as it generally does with farmers who think it is cheaper to buy their strawberries, etc.—they usually go without.
Ohio. N. W. A. B. MASON.

Now look here. It's not much use to tell you, but I'll tell you, anyhow. You can buy a horseshoe cheaper than you can make it, and the blacksmith can buy a bushel of oats from you cheaper than he can raise it. You see the point. But if you're such a stingy old hunks that you won't buy any, it will be cheaper for you to raise it. Get your wife the honey, one way or the other.
Illinois. N. C. C. MILLER.

[The above covers the whole ground so well it hardly seems to me worth while to add any thing. Yet there is one thing I wish to emphasize. It depends almost altogether on the man and his surroundings. My attention was at first turned to bees by seeing just two hives in a pretty garden. The man was a physician, and his garden was his recreation and delight, and the bees were a part of it. The two colonies, although in old-fashioned patent hives with a glass door, were kept so neat and tidy that they were a thing of beauty, besides the goodly amount of honey that they gave him almost every year. Now, such a man will find both pleasure and profit in raising his own honey. As this was a country physician, he doubtless had quite a little time on his hands while waiting for calls. This time he wisely devoted to making his home pleasant, and caring for his nice garden. Now, I know of a great many other cases where somebody thinks he will make some money by keeping bees when he has already more unfinished work around his home than he can possibly look after. The pig and the chickens and the garden are not cared for. When he gets some bees it just aggravates the whole matter, and it all ends in vexation and trouble. Such a man had better buy his honey. See what I have said about friend Terry's farming in the month of July, in another column.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SHIPPING BEES IN LARGE CHAFF HIVES: HOW IT WAS DONE.

I shipped 24 colonies of bees by freight from Hardin, Colorado, April 25, arriving at Payson, Utah, late in the afternoon of the 28th. My hives are two-story chaff hives, holding 24 Simplicity frames. The hives were overflowing with bees. I left but very little honey in any one frame. Many of the hives had ten frames each of brood in all stages of growth. I did not lose a colony until after I arrived here. I lost three in hauling two miles from the depot, over the roughest road I ever attempted to haul bees on. The three colonies were not all killed; but the queen and so many of the workers were killed that I united them with other colonies. They have been building up so fast that I now have 42 colonies. I shall have to extract a few hundred pounds in a few days, as many of them have the twelve upper-story frames full and pretty nearly capped.

I prepared my bees for the trip as follows: I divided the brood and scattered it throughout both stories of the hive. I closed the entrance and left the cover off, covering the top with common wire screen. Of course, I fastened the frames in place. I loaded the hives on lumber, which was so arranged on slats, alternated, that it served as a very good spring. I put eighteen inches of straw in the end of the car, to break the force of the terrible knocking and bumping, and six inches at the sides. I had a deck temporarily built two feet above the top of the hives. When it was hot I kept the end door and one side door open sufficiently to furnish a good draft. During the first day and a half it was raining and cool; after that it was very hot. I had a horse and cow in the car next to the bees; and although the bees escaped some, they did not sting the stock. When a bee came out of the hive it struck straight out for a window, and was lost. A thermometer, which I placed just above the straw cushion at one side of the car, not directly over the bees, did not, at any time, show over 92 degrees.

I think this is a good honey country. There is a great deal of alfalfa (called "lucerne" here) and sweet clover, and fruit-bloom of all kinds. The country is full of bees.

Payson, Utah, June 23. JAMES A. TODD.

QUEENS IN THE SECTIONS, AND WHY; BRICK HIVES FOR THE PRODUCTION OF COMB HONEY.

On page 474, June 1, E. H. Schaeffle wants to know why his queens raised brood in his sections. I think it was on account of the cold weather, and lack of honey in the first part of the season, causing the bees to hang in the supers a long time, drawing the combs slowly, and no honey to store. The queens went up there to keep warm, and got into mischief. I do not use queen-excluders. I made 20,000 lbs. of comb honey last season, all in 4¼ by 1⅞ sections, and had but four sections with brood in them. This season I have found about two dozen sections with drone brood in them, which I account for as above, and partly because I did not use full sheets of foundation in those sections. Those with full foundation did not have brood. I nearly always use full sheets of foundation in sections.

I have 128 stands of bees this season. They are storing honey very fast now—the finest I ever saw. The weather is rather cool for this time of year. It may indicate a long honey harvest. I have built six brick bee-hives as an experiment, for comb honey. I think the bricks will warm through during the day, and give off heat all night, keeping the supers warm, so the bees can draw comb all night. Who has tried brick hives? My bees seem to like them first rate so far. Tell us all you can about Punic bees. The *American Bee Journal* gave them a big puff lately. If we had that kind of bees in California, half a dozen swarms would make a man rich. A. B. MELLEN.

Acton, Cal., June 13.

[Mr. Schaeffle's experience was very unusual. Old bee-keepers like W. Z. Hutchinson and Dr. Miller have since said as much. No, I shall still advise comb-honey producers not to bother with queen-excluders, even if friend S. did think such advice pernicious. No one else has had such experience.—There may not be a bad idea in the brick hives for you; but in our climate, in the spring they would gather too much cold at night, and give it off even during the day, when the bees need the warmth.] E. R.

THOSE 5-BANDED BEES OF ELMER HUTCHINSON'S.

Friend Root:—All the bees from my breeding queen are five-banded, like the sample I sent you, and all are equally light-colored when young. When they become old, say six weeks to two months, they turn a *little* darker; but the five bands remain, and are all yellow, only a slightly darker color. The queen herself is very light-colored, with not even a tip of black on the tip of her abdomen.

The prospects for a good honey crop are better than they have been for the last five years. White clover is very abundant; basswood hangs full of buds, and the bees are *very* strong.

ELMER HUTCHINSON.

Rogersville, Mich., June 20.

FEEDING IN THE BROOD-NEST; DOVETAILED HIVE, VAN DEUSEN FRAMES, ETC.

In the March number, page 200, 1890, Mrs. Axtell speaks of feeding outdoors in troughs, preferring the plan to the use of saucers, pans, and inverted cans above the brood-chamber. I heartily coincide in her methods, but I use the trough inside the brood-chamber. A tin receptacle the full length of the inside of the hive, one inch wide—it may be made the width of two frames if desired, and three to six inches deep, with half-inch projections that it may hang suspended in the hive, taking the place of the one frame removed for its reception. A slat, fitting the trough loosely, and perforated with many small holes through which the bees feed, floats on the surface of the syrup. A trough of the above dimensions, six inches deep, will have a capacity of over half a gallon; one may be placed on each side of the brood-chamber, and feeding be done quickly, and without the melancholy drowning of our bees.

HOW TO REMOVE PROPOLIS.

I see many remedies recommended for the removal of propolis from the hands. Alcohol will be found to entirely answer the purpose. A small quantity poured upon the hands and rubbed vigorously, will convince any one.

INTRODUCING WITH PEPPERMINT.

There are numerous and diverse ways by which a queen may be successfully introduced to a queenless colony; but all are accompanied by delays and sometimes exasperating failures. I have introduced queens at once by smoking the colony on the removal of the queen, sprinkling the usurping queen and colony with peppermint water, and at once releasing on top of frames. This plan has met with no failure at my hands, the queen beginning to lay, and the bees remaining quiet, apparently not noticing the change of queens.

My 18 colonies are now in winter quarters. All are in Dovetailed hives, with outside cases, and packed in *mineral wool.*

I am greatly pleased with the broad (one inch) and thick Van Deusen metal-cornered frames. I shall replace all frames with them in the spring. J. B. Enos.

Connellsville, Pa., Nov. 26, 1890.

[Your feeder, if made of wood, would be exactly what Doolittle uses. It is a very good feeder, by the way. Propolis may be removed with alcohol; but benzine or gasoline, now used in most homes, is cheaper, and about as good. A weak solution of lye is recommended by Dr. A. B. Mason for the same purpose. Queens can very often be introduced by giving them and the bees some strong scent; but, if I mistake not, there have been quite a number of repeated failures with the peppermint plan. It is a good deal safer to cage queens on the candy plan, and then you may scent them to advantage. See Our Own Apiary, last issue.] E. R.

A WET SEASON IN MISSOURI.

It is very discouraging here this spring for bee-keepers, farming, and, in fact, every thing else, as it has been so wet. To-day is June 20, and it has rained 17 days this month. White clover commenced to bloom May 20, but it has been too wet for it to do any good. It has nearly quit blooming. Bees are making only their living, and I judge a good share of that is bread by the amount they are carrying in. There is always plenty of pollen here. I have 57 colonies of bees, and I don't suppose they have 3 lbs. of honey apiece in their hives.

Raymore, Mo., June 20. Wm. O. Heivly.

WILL IT PAY TO REQUEEN?

Will it pay me to requeen a small apiary in order to get a strain of bees that is more industrious? Do you think there is any difference in bees in regard to their working qualities?

Olivet, O., June 30. E. S. Mead.

[It would not pay you unless you wish bees of a more gentle disposition. While Italians will gather more honey than blacks, they will not gather much more than hybrids.]

To date I have taken a little over 17 barrels (50 gallons each) of extracted honey from 116 colonies, and the honey is of fair quality.

Sterling, Ark., June 13. Chas. H. Kincade.

We now have frequent showers, and fine weather for bees to work. The fields are white with clover, but the bees will hardly notice it. I hope it will yet yield, for my bees were never in a better condition for a harvest.

Belle Vernon, Pa., June 17. A. B. Baird.

ALLEY'S AUTOMATIC SWARMER.

We must speak of the swarmer. All the reports that have come in are favorable. Not one unfavorable report has come to hand up to date. Our experience this season has been this: Occasionally a queen could not find her way through the tube. This was quickly remedied. A hole 1½ inches in diameter was quickly made with a center-bit directly over the tube in box *B*, and covered with wire cloth. This let the light in just where it was most needed. After that, about the first bee that entered box *B* was the queen, and there was no further trouble. Those who have received the swarmers and found this trouble will take the hint. It was found that, the nearer the hive or decoy-box for catching the swarm was placed to the entrance of the parent hive, the better the swarmer worked. Instead of using a hive for catching the swarm, a box made of any light material is better. We placed a comb in the decoy-box; and a day or so before the swarm issued, the bees would commence to work into the box; then when a swarm came off they quickly hived themselves. Now, in order to bring the boxes *A* and *C* nearer the parent hive, other holes were made in the center of the tops of them. No one is obliged to use the swarmers just as they are received from us. Make any change in them to fit your hives and situation. The idea should not be lost sight of that, the nearer the decoy-box can be placed to the parent colony, the better. The swarmer is an assured success. Of this there is not a particle of doubt.—*American Apiculturist, July 1.*

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

SPURIOUS TOMATO SEED.

With the large demand for the Ignotum, we sold out all the seed of our own raising, and were obliged to purchase seed; but it all came from our bee-friends, so far as we know, and from those whom we judge to be reliable. We found out, however, that some who sold the seed were very careless, if nothing worse; for some of our plants, when they began to show the second leaf, had foliage like the Mikado. These were pulled out and thrown away, of course. One of our patrons complained that he raised over 2000 plants, and they seemed to be from seed of every variety and description. I know it is a pretty hard matter to make amends for work like this; but we should prefer to do what is right and fair in the matter, and we are going to work right off now to try to save all our seeds from tomatoes of our growing, and these will all be from selected tomatoes. Surely there is no excellence without great labor.

ONION-SETS.

We have just received the following from Landreth:

Mr. Root:—Replying to yours of the 2d inst., we book your order for Pearl sets, subject to our ability to supply them after filling orders on file. The writer noticed an article in the journal relating to Pearl sets; and even in the face of it we do not recommend them for fall planting, except in the South, where the winters are open. They have even been frozen out and entirely killed as far south as Georgia. It is the most tender onion we know of; and were we to recommend them for fall planting in the North it would undoubtedly bring us a number of orders and a stream of complaints later on.

D. Landreth & Sons.

Philadelphia, Pa., July 3.

THE SOUTHERN PRIZE TURNIP.

Friend Root:—As you put my hobby before the readers of Gleanings before it had been properly groomed, I beg leave to state some of the reasons on which my conclusions are based. I have been raising turnips on a rather large scale for several years, feeding them to stock. I observed that oats fell down before maturing, and corn grew stronger on the turnip ground than on other parts of the field, when only the tops had been left to decay. Twenty-five tons can easily be grown to the acre, and I suppose the tops add a fifth more. We have 30 tons of green matter, about 18 lbs. for each hill of corn. This estimate is on the Cowhorn variety.

The Southern Prize, I reason, will do nearly as well, besides being green and fresh; and the fall crop of tops having decayed, a new crop begins to grow as soon as the freeze is out of the ground; and when the time comes to plow for corn we have a mass of tops a foot high, our 18 lbs. of green manure in the best possible condition to mature the hill of corn, and this has all been done between the seasons of planting.

The nutritive properties of turnips, I am sure, are greatly underrated. The chemists say that turnips contain 90 per cent water. How is it that they are so highly esteemed for feeding sheep, when sheep require less water than any other class of stock? My experience is, in feeding to all kinds of stock (even to the chickens), that it is a kind of water that helps a little corn and fodder out mightily, and you save the pumping. I can get 100 bushels of turnips with as little labor as it takes to raise one bushel of potatoes; and, supposing the stock harvest both crops, the gain would be with the stock that gathered the turnips and the ground they grew on.

One of your correspondents, a year or so ago, said the way to insure a crop is to sow the seed two inches deep; and supposing you had proved the statement, as you are so well fixed for that kind of business, was why I wrote you.

Avon, Ind., July 7. A. A. PARSONS.

To-day finishes the strawberries with me. I marketed 46 bushesls. How do you like the Enhance? Mr. Young, the originator, has another wonderful crop of it. He told me the other day that his advertisement in GLEANINGS brought him more orders for plants than any other paper he used. J. GUISINGER.

Ada, Ohio, June 5.

THE NEW STRAWBERRIES, ONIONS, ETC.

Your last GLEANINGS is a very valuable and interesting number. I have read your reports on the Haverland strawberry, with much interest. It is a very fine berry indeed. I see you have added the Parker Earle to your list. I don't want so say too much of this variety at present, for I have seen it in fruit here only this season; but it was a sight long to be remembered. It was the most productive strawberry I ever saw, I think. That and Bubach No. 5 will make a fine team. I would advise you, from what I have seen of this berry, to take care of every plant you have, for I think they will please you; but, of course, I may be mistaken; but from the reports we are getting for our July number, Parker Earle is doing most excellently outside of what I have myself seen. Michel's Early is doing very well in most places. Our July report will be rather late—15th to 20th; but you will find it very interesting on the strawberry. We would only suggest that you also try a few of the Princess, pistillate.

I notice the tobacco dust with you was not a success for the cucumber beetle this year. I would say, for the first time I had a hard matter to save our "cukes" and melons this year, but we did with the tobacco dust and air-slacked lime, mixed. This I have always used, but had to use it more freely this year than ever before.

I have a white Silver Skin growing, in every way similar to the Egyptian, except that the tops make a nice-sized bottom, and very few go to seed except the largest. The sets are the best-keeping onion I ever saw. We kept them last year in our small berry-crates, and did not notice one sprouted at the time of planting. We have found a good market here for these bunched, selling for 25 to 35 cents per dozen bunches; on an average, 30 cents or more. Last Saturday we took in 96 dozen. They brought $30, costing 3 cents per dozen for peeling. But I don't think they run as large as the onion you speak of; or, at least, mine did not this year. But I know my land is not as good as yours; but I am wonderfully well pleased with it.

Rio Vista, Va., July 7. M. T. THOMPSON.

THE KEEPING QUALITIES OF THE BLOOMSDALE PEARL ONION.

Friend Root:—In reply to your inquiry about the keeping qualities of the Bloomsdale Pearl onion, I can only say that I do not know. So far I have not been able to keep them long enough to find out. I pulled some this year with the intention of keeping them, but sold them last week, after they had been on the ground exposed to the hot sun for about four weeks. They were then sound and sweet. I have no more, and so can not make a trial this year. The onion is so sound and firm that I believe it will prove a good keeper. A. SION.

Kyle, Tex., July 8.

STRAWBERRIES IN WISCONSIN, ETC.

My strawberry crop this year was a failure on account of the hard frost in May. There was one man here who got up in the night two or three times, and covered his up; and as the result of a few hours' work. from half an acre he picked 60 bushels of berries. Another year I shall cover mine.

THE LANG WEEDER.

Did you ever use a Lang weeder for putting in strawberry-runners? If you have not, try it and you will not want to use any more stones and sods to hold them down. Take the weeder in the right hand and the runner in the left; make a slit in the ground, and then shove the runner in, being careful not to cover the end. A smart boy, when he gets used to it, can put in 1000 an hour, and then they root about three times as quick. By this method I can get a stand of plants, even if it is dry for six weeks. I should as soon think of being without a hoe as a Lang weeder. I save the price of half a dozen every day I use one.
ing on basswood now. P. H. FELLOWS.

Brodhead, Wis.

[We have used the Lang weeder, but find a garden trowel about as handy.]

OUR HOMES.

A righteous man regardeth the life of his beast.—PR. 12: 10.
Charity suffereth long, and is kind.—II. COR. 13: 4.

Our business usually begins to slack up toward the Fourth of July, so that we can breathe a little easier, and think about visiting "our neighbors" and taking a holiday, especially when the Fourth of July comes. Just after dinner on the 3d of July I obtained a "leave of absence" until the Fourth of July was over. As horses are, as a rule, mostly pressed into service during the Fourth of July, I found myself obliged to take one of the horses from our big team for my buggy-ride of 60 or 75 miles. They decided to let me have old Jack. Jack would be worth, perhaps, $200, or even more, if it were not for an infirmity. When he is taxed toward the limit of his strength he is troubled with the heaves, and begins to cough. He is a large, powerful horse; and although he is not used to being driven in a buggy, just as soon as I gave him the word he started off on a long steady lope that takes one forward at a pretty good pace, although the horse does not seem to be making much exertion. He kept this lope up, without any urging, for seven or eight miles. Then he began to lag a little. A little chirrup, however, would start him up, and he would go again almost as well as when he started. On account of his infirmity it is not well to have him get wet. But a cold thunderstorm was approaching from the north. In order to reach shelter during the storm I hurried him, even when he was pretty tired already. Then I noticed that he began to show the sweat just a little; and to get him in out of the storm I used the whip a little—just touching him with the end of the lash. He is so unused to the whip that this startled him, and he pushed on until he began to cough. Just as the big drops began to fall we reached the shed we were making for. Then I got out and patted my horse, and began to get acquainted with him.

"Good old fellow Jack, I really beg your pardon for having used the whip a little on a horse that never needs whipping. But I hope you will recognize, as you hear the storm outside, that I did it for your own good."

He was panting, however, and coughing, and it took him ten or fifteen minutes to fully recover his breath, and to get entirely over being urged beyond his strength. Then the cough gradually abated; and when the rain had ceased he started off with the same strength and ambition that he showed when he first came from the stable. As I drove out of the shed I was planning to myself that I should boast to Mrs. Root that I did not get even a spatter of mud on the cleanly washed buggy. Before many miles, however, we had a repetition of the thunderstorm; and this time our refuge was a covered bridge. We did not reach it until the horse got pretty wet; and the north wind blew through the bridge so as to make a draft that I knew must be bad for the horse. His coughing increased, and I finally decided that we *must* push ahead, regardless of the rain, to a better shelter. Now, the point of this little sketch is this: What a wicked and brutal thing it would have been to whip this horse to make him go ahead when his strength was exhausted, and while he was doing the very best the poor fellow could do! When urged the second time, his infirmity showed worse than the first, and I resolved to get a warm stable for him, no matter what it might cost, and have him well cared for and fed before he did any more service. I said to him, as I got him out of the rain, "Look here, old fellow; you are one of the best horses I ever got acquainted with; and you and I are going to be friends as long as we live. If anybody ever overtasks your strength needlessly, or scolds you, or abuses you, when I am around, if I can not stop it otherwise I am ready to fight for you."

And now I want to tell you that we often find among horses, as well as among human beings, a sort of nobility. As it was time for firecrackers, Jack started a little several times, and looked somewhat troubled when they came around him pretty thickly. But when I assured him it was all right, and that they would not do him any harm, he gave me a look as if he were mentally wondering whether his new driver was thoroughly posted in all these matters, and knew what he was saying. But when I told him I *knew* all about firecrackers—that they were all right—he seemed to take my word for it, and we had no further trouble.

During the Fourth (the next day) Jack and I had a chance to get pretty well acquainted with firecrackers and fireworks. In fact, I drove him about twenty miles after sundown, and before eleven o'clock; so we were passing many "homes" during almost all that ride. Around the doorway at every home were more or less juveniles celebrating the Fourth of July. Their kind mammas had permitted them to have a little fire out in the yard; and even the little tots, not more than two years old, were "celebrating." The grown-up boys—yes, some that were of age or more—generally helped—that is, where they were not off with their girls. The Fourth of July is a grand time to go riding with your "best girl," you know. If you don't know—why, you ought to (at least, in my opinion), providing you do not overdrive your horse, or forget him, in your devotion to your companion. I do not think I saw very many horses overdriven, unless in one or two instances, where the occupants were intoxicated. There was not any girl in the crowd in these cases. Come to think of it, the young men with their girls generally drove very slowly—so much so that Jack and I had to go past them, and they were too busy to even think of turning out of the road. Sometimes the girl was driving, and sometimes *nobody* seemed to be driving very much. Never mind. It is all right, providing they get home in good season, and remember that a solemn and sacred *responsibility* rests upon the boys and girls of our land, even on the Fourth of July. Well, faithful Jack, during those two days, won such a place in my affections that I mentally resolved to tell Mrs. Root, when I got home, something like this:

"Look here, Sue. I have made a resolution that, whenever Jack misbehaves in any way, I will remember that he has a great big balance to his credit, made up during this trip; therefore he must not be scolded, nor, under any circumstances, whipped. You are to remind me of this agreement, or *covenant*, if that is the right word to use, between myself and this horse."

By the way, friends, wouldn't it be an excellent idea to *look* for opportunities of laying up a balance of credit on the good side of *everybody*, to be brought out and held up to overbalance the time when they are bad? My dear friend, have you not yet discovered that every human being on the face of the *earth* will, sooner or later, act bad in some way? and if horses should do as badly as we "humans" do, would it be any thing to be wondered at? Sure enough, my good friend Jack acted badly before we got home—at least, it seemed to me that he did at the time, and I came pretty near forgetting my good resolution. Long before we reached Medina, away off over the hills I saw the fireworks—rockets innumerable, and occasionally a balloon. When we were within perhaps a quarter of a mile of the town, Jack, too, began to notice, with his horse sense, that there was some unusual display in the heavens. He had seen stars, of course, time and time again, ever since he was a colt; but who ever saw stars shoot up in that way, and then pop to pieces with a boom, spreading sparks and fireballs everywhere? He pricked up his ears, and followed the rockets with his eyes, even looking almost straight over his head. My path led directly by the square where the fireworks were being sent up. At first I thought Jack was steady enough to go right through them all. As I urged him forward he began to tremble, especially when a rocket fell pretty near to him. Then he would turn his head around and look at me inquiringly, evidently anxious to know just what I proposed to do, and perhaps feeling a little bit doubtful about my own good sense and judgment. So I decided to turn off one block before we reached the scene, and go around; but of course I could not tell him this. So much had been going on during the day that I had not had my usual afternoon nap; and the Fourth of July dinner was late, so I began to feel a very great hankering for the privilege of laying my head on its accustomed pillow. This made me somewhat impatient; and when Jack said to me, as plainly as actions could say, that he was really afraid to go further on that street, I grabbed the whip and was going to give him to understand that, when *I* said go ahead, I meant just exactly *go ahead* and nothing else. Then I remembered my resolution. We were pretty near the corner; but Jack could not understand, of course, that I proposed turning off at the corner. He thought he had got to go past that volcano of pyrotechnics. To make him go on to a point that would lead us out of danger, I did use the whip; but I am glad to tell you that I used it *lovingly*. I did not give him a *stroke* more than was necessary, nor did I strike even a fraction *harder* than was really needed to get him up to the point where he could see the turn. *Then* it was worth something to see how he pricked up his ears and started off, tired as he was, on a brisk trot. He seemed to "catch on" all at once, just how we were going to get home; and, tired and weary as we *both* were, he fetched around to his stable in fine style. Huber, Caddie, Constance, and mamma were wide awake and full of the Fourth of July, but, like myself, pretty tired. Something new in the way of balloons attracted my attention until my wife told me I had better take care of my horse and go to bed. But when I went to lead him into his stable, old Charlie, who has a fashion of getting "cast" once in a while, was found to be down and could not get up. At first Mrs. Root thought he did not breathe, and this got me a little excited. As soon as I loosened his halter-strap, however, and gave him a pull, up he came on his feet, as sound as ever. Then tired old Jack was unharnessed, and by that time I began to discover that *I* was about on the last point of nervous exhaustion. Oh how I *did* long to lay my head on my pillow, and not stir, nor hear a sound nor a word from anybody! Why, my friend, if sleep should fail me I should be—what? Well, I felt that night like—something about half way between a walking skeleton and a maniac. Do horses ever feel that way? Yes, I am sure they do. I have seen them sway about through overwork until they looked and acted just as I *felt*. Suppose somebody had whipped *me* at just that point, and tried to make me go ahead and do more work. Well, people do whip horses under just such circumstances. They whip them when they are suffering for food and perhaps for drink, when they are exhausted to the last point of endurance by long hours without rest. They whip them until they *do* fall *down* and *die*. Now, if you can realize and understand what it would be to be whipped and pushed ahead under circumstances like these, I shall have accomplished the purpose of my little story to-day. "A merciful man regardeth the life of his beast." My friend, if you are a Christian, and I hope you are, you profess to be a merciful man; and are you merciful to your beast?

Before I close, I wish to tell you something more about horses that I got from friend Terry. I went all over the farm, and looked at every thing—dug into the ground, climbed up on the fences, looked over into the fields, etc. I looked for thistles, docks, and other weeds along the roadsides. I watched to see whether the horses had stepped on his hills in turning around, especially as I saw the potatoes come up pretty near the fences. To my surprise, the potatoes were just as good, or even better, where the end of the row comes, as anywhere. Said I, "Why, friend T., surely your planter does not plant the potatoes clear up square and true to the fence like this?"

"Oh, no! We plant two or three hills by hand."

"Oh, yes! I see. But how does it come that none of these hills at the ends of the rows have been stepped on by turning the horse around?"

"Well, Mr. Root, it comes by having a horse that *knows* better than to step on hills. He is, perhaps, 18 years old, and has been at that work all his life."

"There, friend Terry, that is just such a horse as *I* want. I would give almost any thing for one."

"Why, friend Root, you have one already. Almost any horse can be taught to do it. The point is, with the driver. More hills are stepped on by the driver yanking or scolding the horse until he is so worried he *can not* attend to his work, than any horse steps on of himself. Teach the horse kindly what is wanted, then let him manage it alone by himself, and he will keep off the potatoes."

"Now, look here, friend Terry; I have often suggested that an old gentle horse should be driven without lines entirely. Why not omit the lines, and then the driver could not yank him, even if he would?"

"Well, you can omit the lines if you choose. In fact, I have seen it done a good many times. But a line properly used is a help, both to the horse and to the driver. You see, a horse gets so used to the regular routine that he will turn around of himself, and go back on the next row without a word; and when, for some reason or other, we wish to stop work, or to work in a different way, a line helps to indicate what you want him to do. I should prefer to have the lines, but use them only to direct the horse and in a very gentle manner."

After this talk I began thinking of how many times I had been pained by seeing a good horse worried, and made inefficient, by yanking and scolding. Let me tell you what I have seen—not, perhaps, at one time, but at different times. Suppose it is Hubbard squashes we are cultivating. Strong thrifty plants are valuable, and they are planted so far apart there is no difficulty at all in turning so as to avoid injuring them. At the end of the row the horse would have turned around all right without hitting a plant, especially as its leaves are, say, a foot high. The driver, however, has his mind on something else, until he thinks the horse is going to step on a plant. He yells at him, and gives him a yank. The horse looks pained, forgets to notice his feet, and steps on the best plant in the hill at the end of the row. Then the driver yells, and calls him a fool, and yanks him harder. He backs up and tramps on the hill behind him, forgets all about the plants and every thing else, and possibly thinks there is no use trying to please, and so he finally steps on *another* hill. After a while they get started again. The driver has been desired to swing the cultivator up between the hills as much as possible, as they are a good way apart, and pull it out again before reaching the next hill. While doing this he forgets all about the horse, and the horse steps on the leaves of another plant. The driver calls him an idiot, and gives him another yank with the lines, and the poor horse crosses clear over until he steps on a hill on the other side. Now, I have seen nearly as bad work as this in one afternoon; and I have seen at least four or five different drivers do *some* of that kind of work. The horse gets too near the row. The driver then loses his temper a little, gives the horse a tremendous yank on the other side, and pretty soon the horse gets so he does not pay any attention whatever to rows or plants. What a sad, sad state of affairs this is, both for horse and driver! It is the old trouble I spoke of in my last paper—sin and Satan. Perhaps somebody may say, "Well, Mr. Root, when *you* cultivate I suppose we have perfect work, and an exhibition of perfect, even temper."

My good friend, *I* do not often cultivate more than one or two rows at a time—that is, I do not cultivate potatoes and squashes much more than that. But, oh dear me! there *is* a kind of "cultivating" that I do every day of my life. I am afraid—yes, I am *sorely* afraid—that, if those around me were to tell the full truth, they would be obliged to admit that I do *sometimes* "yank on the lines." While it is bad to spoil the disposition of a horse by giving way to ill temper, it is a thousand times worse to spoil the temper and disposition of human beings by giving way in this manner to sin and Satan. I suppose the good friends about me would be very loth to tell right out what they sometimes think. Perhaps they would excuse me by saying that I am overburdened with cares, or suffering from nervous prostration, etc. The best remedy for nervous prostration, or, in fact, for any infirmity of the nerves, is to practice the latter of our two texts—"Suffereth long and is kind." This little text is not only conducive to the health, but it is a *money-making* investment. A man who is cultivating corn, and who has a disposition all day long to "suffer long and be kind," accomplishes a great deal more. He makes *more money* in every way. If we look about us we shall find sin and Satan along in this line almost *everywhere*. It is not only out in the fields with the horses, and among the farm help, but even in our homes; and while I write, there comes to me a plaintive letter from a child. When I first thought of putting it into print it occurred to me that there might be many, many homes, and many fathers and mothers, who might feel startled, thinking perhaps it was a child of *their own*—an inmate of *their* home who had seen fit to write Uncle Amos that letter. As you read it, dear friend, may God give you grace to own up and set up a thorough reform, if it is needed, in your family. May God give you grace to say, "Get thee behind me, Satan," with such energy and determination that a change *shall* be brought about. Here is the letter:

Dear Mr. Root:—I am so glad you wrote about the trouble in your German family. Won't you be kind enough to pray for my papa and mamma just as you did for them? They are living the same way—never see any thing good in each other, though they are both good to other people. I have been an invalid for a long time. I suffered horrors; but I don't mind that half as much as I do their ill treatment of each other. There is little or no enjoyment in life for us on account of it. They will both read your Home talk in the last Gleanings, but I am afraid they won't profit by it. Do help us to pray for them.

To be sure, I will pray for you, my dear young friend; and I wish to ask the readers of Gleanings to unite with me in that prayer; and won't this wonderful Endeavor society, that is doing so much, not only pray with us but try to help us? Let me beg of you, dear father and mother, whose eyes meet these pages, for Jesus' sake do not "yank on the lines" when things go wrong. Don't "yank" at each other, no matter *how* strongly *Satan* urges. When temptation comes, take my little prayer into your hearts, and breathe a fervent "Lord, help," and I assure you it will bring peace and joy to take the place of rankling and bitterness. Henry Drummond, in that wonderful little book entitled "The Greatest Thing in the World," has the following in regard to this vice of which I have been speaking:

> "No form of vice, not worldliness, not greed of gold, not drunkenness itself, does more to unchristianize society than evil temper. For embittering life, for breaking up communities, for destroying the most sacred relationships, for devasting homes, for withering up men and women, for taking the bloom off childhood, in short, for sheer gratuitous misery-producing power, this influence stands alone."

A VISIT TO T. B. TERRY.

HOW HIS FARM LOOKS DURING THE FORE PART OF JULY.

It was just after the thunder-shower, as you may remember, when I came in sight of his beautiful place. His premises were not only plainly manifest by looking over into the fields, but the sides of the roads indicated it at once. His place is on a road rather unfrequented, and therefore the grass comes up pretty well to the wagon-tracks. But it is clean grass, and nothing else. No weeds are allowed to go to seed on any ground that he has any sort of control over. I talked with him about abandoning fences at the roadside; but he says his neighbors are largely engaged in dairying and stock-raising, so it would inconvenience them so much that he must, at least for the present, keep his farm fenced in. Well, when we approached the barn and dwelling-house, on opposite sides of the street, I came very near uttering exclamations of surprise. The lawn inside of the dooryard fence is not a bit handsomer than that outside. Yes, the grass was so beautifully trimmed with the lawn-mower, clear up to the barnyard and stable-doors, that I almost hesitated to cross it with my buggy. I said "stable-doors," but there are not any stable-doors until you get inside of the covered barnyard. I began wondering how it was possible to keep the premises around the barn in such "citified" style, if I may use the expression. Then I remembered that friend Terry has not a chicken, cow, nor pig, on his whole farm. Oh, yes! they do have one cow to furnish milk and cream to go with the strawberries. I did not ask what became of the refuse from the kitchen, that is ordinarily given to pigs and chickens, but I presume it goes into the slop-barrel on wheels, and is then wheeled out on to the ground, where it is soon worked under. In banishing poultry he certainly gets rid of a great deal of bother and a lot of unsightliness. In fact, I do not know of any animal that can make more disorder and confusion than an enterprising, go-ahead hen. Give her a lot of half-grown chickens to help, and they are certainly a terror to neatness. On the other hand, there is a great deal wasted on the average farm and around the average farmhouse, if there are no chickens around to pick it up. I do not like poultry around the *house* any better than Mr. Terry does; but I am not yet quite ready to lose the daily supply of eggs that I get, costing, a great part of the year, almost nothing. Another thing, I do like to see a troup of nice poultry start out to follow the plow or cultivator. Where we manure ground up to the highest standard of fertility, great quantities of angleworms seem to be a natural product, and I believe they would eat up and destroy a great part of this rich manure if we did not have poultry on our grounds to follow after the tools whenever the ground is stirred and turned over. It is true, the chickens get into the tool-house to some extent (but we have almost got them broken of the habit, however), and I feel as much disgust at their droppings as almost anybody. One of the first lessons my father taught me was to save *every* thing; and the poultry are adepts in economizing and saving every little odds and ends eatable. Within the past few days they have been making sad havoc by eating off the foliage of our late cabbages where they were planted near the barn. Of course, it was the Brahmas that did this. We stopped it, however, by giving them all the shelled corn they could eat, and planting some early cabbages very close together right around the poultry-house.

It was a great treat to me to be permitted to run over Mr. Terry's farm and ask all the questions I chose. I had been carefully scanning the crops through Medina and Summit Counties, and therefore I was better prepared to notice the marked difference through all of Terry's fields. First, the crops were all even. How I do like to see a crop all alike over a large field! The rule is, you know, spots of fine growth, and then larger spots of poor miserable growth; and on many of the farms we see places where they do not even get back their seed. How can there be any good average, so long as such things exist? Well, Mr. Terry has been hard at work for years in fetching up the poor spots. Where it is wet, careful, thorough underdraining has fixed that part of it. Where it lacks in fertility, a little manure, or mulching with straw at just the right time, and encouraging a growth of *clover* first, last, and always, has brought those poor places up to the general average. Now, I wish to emphasize one point right here. Everybody seems to be trying to find out some excuse for Terry's great crops, rather than to admit that the credit belongs to Terry himself. One friend of mine said, a few days ago, something like this:

"Oh, yes! you talk Terry. Terry has a great army of men to help him, and plenty of money, and it is no wonder that he can raise big crops."

I stared at the man in surprise, and he stared at me in surprise a little when I quietly remarked, "Why, my good friend, you are making a tremendous mistake. Terry's great hobby (next to clover) is in managing so as to avoid employing high-priced help. He and his boy and one hired man do all the farming; and a great part of the year they do not have even the one hired man."

Well, a good many have said, "Oh, yes! Mr. Terry has got a piece of the richest land in the State of Ohio; and anybody can make a living on *such* soil as he has."

That, too, is a big blunder. We got a bright clean spade out of the tool-house, and I made it my special business to dig down as I passed through the fields. In one place where the clover was particularly rank and strong I uttered an exclamation of surprise when the spade showed poor yellow-looking dirt almost exactly like the poorest gronnd on my own place at home. Yes, we have some ground that is so poor that I have just thrown away manure in trying to make it raise something. It is doing better, but it takes time. Well, friend Terry has several acres yet that has never been reclaimed. As we looked it over he said it would probably not bring over $15.00 per acre. The original soil had been washed off, and it was hard, stony, gravelly, yellow clay. A part, however, of this same kind of land has been redeemed. Just over the fence there was a beautiful stand of wheat, all even, with great long heads just bending under their loads of plump grain. Clover and underdraining did the business. From what experience I have had, I should say that his tiles were too small; but he said they were all he could afford when he did the work. Another thing, many of them have *no outlet*, except being stopped right in this hard gravel; but they are doing very satisfactory work. Mulching the poor portions with straw has also been a wondeful help in getting a stand of clover. It is the result of enthusiasm and steady work year after year, together with careful planning and experimenting, to make the most of some of the poorest ground to be found in the State of Ohio. There is, however, *some* very good ground on the place. This will produce excellent crops without very much care or attention since it is thoroughly underdrained.

While at Everett, on the river, we talked Terry, of course; and a store-keeper there told me he would like to see Terry manage with as little help as he used, on their rich river-bottom land. I asked him where the trouble lay, and he replied: "Why, Mr. Root, the *weeds* grow so enormously. It beats any thing you ever heard of. You can scarcely raise a crop of any kind, for the weeds shoot up, and get away above it, and you can see them all around you here, higher than your head."

Yes, I did see them "higher than my head;" and I saw rank luxuriant corn and potatoes struggling with the weeds. Oh, dear! what an excuse to bring forward—that the ground was unfortunate because the *weeds* grew so fast! Why, *I* just delight in seeing weeds grow on our place—that is, I delight in seeing them *undertake* to grow. Now, I, too, should like to see Mr. Terry take hold of some of that rich river-bottom ground, and I should like to see him manage the weeds. There may be a providence, however, in the fact that God has seen fit to plant him where he is—on a farm that averages about as poor naturally as almost any farmer in the State of Ohio has to contend with. If you think I am deceived, just visit friend Terry, as I did, and take the spade and go over his farm.

I was a little surprised to see their strawberry-patch struggling with wheat, so that it might almost be called a wheat-field. But the reply was, that, after the frost killed the berries, it was not worth while to go to the expense of pulling out the wheat.

"But, my good friends, why didn't the wheat come up in the same way last year? When I was here a year ago there was not a spear of wheat on the whole half-acre."

"Oh! we pulled it out last year."

"Oh! you did, did you? Well, now, when I wrote about it in the strawberry-book I was under the impression that you shook the straw so thoroughly that no grain was left to germinate."

Now, friends, look here. Right here is a significant fact. Even our best thrashing-machines (for I suppose friend Terry employs a good thrasher) leave enough grain in the straw to make a thin seeding where the straw is put on the ground for a mulch as thoroughly as Terry does it among his strawberries. It is true, his strawberries were almost a failure, with the exception of the Sterling. I thought I had seen and tasted handsome berries; but I certainly never enjoyed any berries before as I did those during my last visit. I took supper while my horse was eating at Everett; but when I told them the fact, Mrs. Terry said I must have some strawberries anyhow. You know I not only eat a quart at a meal, as friend Terry does, but I eat a great many between meals. In the first place, the Sterling, besides being hardy, is about the most handsomely colored berry I ever saw. I do not believe the colored plates of strawberries have ever overdone the matter, so far as the Sterling is concerned. The berries are not extra large, but they are of good shape and even size; and then the strong tart taste that I liken to lemons, with large berries fully ripe, is not an objection, with plenty of sugar and cream. I ate so many that I was ashamed to eat any more. One thing more: The heavy manuring we have been in the habit of giving our strawberries for some years past tends to make them awkward in shape, and, especially where there is abundance of rain, watery in flavor. Preparing the ground with clover, without using manure, gives us berries of better shape, and, I am pretty sure, berries of better flavor. By the way, I examined the soil critically around the shrubs in the dooryard. Mr. Terry got it out of his old clover-fields. Perhaps where the ground is good already, and where clover has been turned under for a good many years, such ground as that is certainly a splendid soil for any plant or fruit. I am planning now to grow some clover just on purpose to fit the ground for some crops that I do not succeed with to my satisfaction. I asked friend Terry how to manage, and he suggested cutting off the top of the clover often enough to keep it down where it would plow under nicely. A neighbor of mine wanted our big team a few days ago to turn a piece of clover under. The clover was so rank and long, that, after they tried it half a day, they had to give it up. So you see if we wish to turn under all the clover the land will produce, you have got to work and watch carefully.

In my next I want to tell you of another visit made to one of the most progressive and prominent farmers in the State of Ohio. It will be interesting, because this latter friend arrives at much the same conclusions that friend Terry does, but by quite a different method of working.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

I have persuaded Mr. Jonas Yutzy, of this place, to quit using tobacco, and you will please send me a smoker for him; and if he ever uses it again he says he will pay you for the smoker.

Sunny Side, Md., May 16. M. H. DEWITT.

You may send a smoker to F. B. Fulkereth, as he has been induced through GLEANINGS to give up the use of tobacco. I have had him on probation for a year, and think he is worthy of the gift. I am his security in case the pledge is broken. J. Q. MULFORD.

Lebanon, O., May 18.

Through the Tobacco Column in GLEANINGS I have quit the use of tobacco. I have used it for ten years. I never tried to quit before. If you will send a smoker I will never use the weed again. If I fail to keep my promise I will pay you for the smoker. L. W. FRANKS.

Betzer, Mich., May 11.

THE FUND FOR HELEN KELLER.

SOME GOOD NEWS FOR TOMMY STRINGER.

W. S. Hart, Hawk's Park, Fla	$1 00
W. F. Nehring, Strasburg, Ills.	1 00
Mollie O. Large, Millersville, Ills	1 00
Kittie Bickford, Ellenton, Fla	25
A. A. Duncanson, Superior, Neb	1 00
T. H. Strickler, Solomon City, Kan	25
Stebbins' children, Churchland, Va	20
C. C. Phelps, E. Windsor Hill, Conn	25
"For Tommy," from Hanover, N. H	1 25
Sunday-school, Harmon, Ill	4 50
H. L. Wells, Rockville, Md	25
Mrs. Jackson, Sigourney, Iowa	1 00
Lewis' children, Peru, Ind	10
W. W. Case, Baptistown, N. J	1 00
J. N. Carrol, Jr., Owing's Mills, Md	1 00
John Short, Moline, Mich	1 00
W. W. Kulp, Pottstown, Pa	40
Mr. and Mrs. Root, Assumption, Ill	1 00
E. Lee, Flintstone, Md	1 00
E. J. Hulse, Washington, D. C	1 00
George, Jessie, and Clara Easterday, Dexter, O.	1 00
A Reader, Washington, Kan	2 00
E. C. Babcock, Elroy, Wis	1 00
Sallie Kulp and friends, Danboro, Pa	5 25
B. D. Sidwell and children, Flushing, O	2 00
W. E. Cunningham and friends, Kent's Store, Va	1 00
A subscriber, Crescent Hill, Ky	1 00
Mrs. Mary Hunter, Vicksburg, Mich	1 00
Cash, New Hampton, N. Y	1 00
Total,	$33 70

Mr. Charles J. Quinby, of White Plains, N. Y., sends us $14, subscribed by the following persons:

Robert Sherwood	$5 00
Robert Sherwood, Jr	1 00
Mrs. B. M. Gary	1 00
Miss M. E. Gary	1 00
Miss Bessie Gary	1 00
Mrs. W. H. Bowers	1 00
Mrs. A. E. Stewart	1 00
Miss Jennie Horton	1 00
Mrs. I. A. Soroby	1 00
Miss M. J. Hammond	1 00
Total	$14 00

KIND WORDS FROM OUR CUSTOMERS.

THE WAY WE FILL ORDERS FOR BEES.

Your bees came to hand, and I must say in very good order, last Friday. I don't believe they were in their hive over an hour before they were at work as though they had always been there. I thank you very much for being so prompt, and sending me such a good lot; and though I did not see the queen, still the bees are looking all right.

Monticello, Ill., June 10. WILLIAM WORSLEY.

I do not know how any one interested in bee culture can get along without GLEANINGS. It is a very welcome journal, as it contains so many good things. The prospects for a good honey crop this season are assured. All kinds of flowers appear to contain a secretion of honey. White and red clover are better and more plentiful than for many years.

Muncy Station, Pa., June 22. R. I. CROMLEY.

OUR METHOD OF PUTTING UP BEES.

I received the bees from you a few days ago, and I would say that I think it is the very best way they could be sent. J. Rouse and S. Vanalstine, two bee-keepers, looked into the frames, and are very certain that there were not one dozen dead bees in all three boxes. We saw two of the queens. They were very nice ones. One had her wing clipped. What do you think caused that? Did you do it? If so, why? Z. O. TITUS.

Lynd, Minn., June 15.

"IS NOT EASILY PROVOKED, THINKETH NO EVIL."

On page 483 you will find these passages applied to my case, because in an article in the *Bee-keepers'*

Guide, page 131, I gave my opinion of the way Mr. Root answered an article concerning rich men and lawyers being Christians from a Bible standpoint, and told, also, how I had always regarded Mr. Root as a Christian, and why. The reason I wrote in that paper was because I thought Mr. Root shut off the liberty, in his paper, of speaking further on the subject, which I considered wrong; and as I saw that, in the *Bee-keepers' Guide*, there seemed to be fault found with Mr. Root for selling poor articles; and as my article was strictly religious, and I knew not for certain whether the editor of the *Guide* was a Christian; and if he *were*, perhaps he might be like Mr. Root—would favor the rich. I thought to tell of the articles I had bought of Mr. Root that I thought were not worth the money I had paid; also telling the facts concerning the smoker. If his clerks sent me a bill before I wrote, I never received it or I should not have written as I did; and when they wrote, asking me if I had received it, I thought they questioned my honesty, and I did not answer them, but believed their word, and waited, thinking that the letter or card might have been lost through the mails, and would yet come. But it never came, or, of course, I should not have been such a thief as to have put in the word "hope" instead of "trust," as this was the word I ought to have put in; and after the article was gone I saw it would look doubtful, and realized they could do no such business and prosper, and had no idea they did. I hoped the editor of the *Guide* would notice it, and not print the article. I meant to write and tell him, but prayed that God would lead him right, as I had taken pains to send my article away to have it copied, so as to have it plain, and I trust yet that it will all work for the glory of God.

My son, whom I had wished to print a bee-paper, and let me write my religious experience as Mr. Root did, had left me with the bees. I think the main reason was because his mother had no faith in his success in the business unless he took God at the helm, as I contended that Mr. Root did. The unjustness and unfairness of professed Christians had made him a skeptic in regard to the whole business of Christianity. He had the best of reasons for his doubts, and was much more honest than a hypocrite; and he has always contended that millionaires do not get their property by means of their honesty, and was not sure that Mr. Root was entirely unselfish. I wrote that article for his encouragement and benefit as well as Mr. Root's. We read, that "open rebuke is better than secret love."

When a young girl I went to school to a young and very devoted Baptist minister who wrote a motto on the blackboard, and had all the scholars read it with him in concert until we learned it. It was this: "Those are our best friends who tell us of our faults, and teach us how to correct them;" and it was my respect for Mr. Root, and love for his soul, that caused me to write as I did; but more especially for my son. But there was this one flaw in my article, and he has published it all over the United States, and it has greatly misrepresented my principles. When I read the A B C of Bee Culture I could not have thought that he could ever have so erred; but, to err is human. I believe that A. I. Root is a superior man, and that he started right; that he has superior business tact, and it is getting ahead of him, so he has no chance to search the Scriptures. He can go to church on Sunday, and trusts too much to his good pastors instead of searching more for himself. His main fault is in not realizing that A. I. Root is not deserving any praise for his tact, for God only gave it to him to secure the avails for his own glory. I hope that Mr. Root will never again publish that a woman professing religion could be so dishonest and unwise as to do as he assumes that I might have done, unless he says boldly that I am a hypocrite of the blackest dye.

For fear Mr. Root may think I favor the poor because I am poor, I will say that my husband is a money-loaner, and all my relatives, so far as I know, are considered well off, but are not millionaires. I am not keeping bees for a livelihood.

Bradford, Iowa, June 29. MRS. F. A. DAYTON.

[My good friend, I never once thought of your being other than a sincere and earnest Christian. But earnest Christians are often led into making grievous mistakes, and mistakes that harm and hinder the very cause they love; and I still think that this matter of being in haste to think evil is one of the saddest mistakes of the present day. We are all of us more or less guilty. May the kind Father help us!]

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

A bruised reed shall he not break, and the smoking flax shall he not quench.—ISAIAH 42 : 3.

WE are raising queens now in the house-apiary. Not so bad a plan, after all.

ACCORDING to our Honey Column, elsewhere, there is very little new white honey on the markets as yet.

SINCE our editorial in our last issue, referring to the delinquency of new bee-papers, quite a number of the missing journals have put in an appearance.

MR. DOOLITTLE says (p. 585), that "the purity of a queen can not be told by her looks." Quite right, Bro. D. We have more jangles with our (ignorant) customers on this point than on any other.

AMONG our poultry exchanges there is none better printed or edited than the *Fancier's Monthly*, published by James R. Parker, San Jose, Cal. The price is $1.00 per year; or clubbed with GLEANINGS, $1.75.

WE see by the *American Bee Journal* that some credit is due to the manager of the Union, T. G. Newman, as well as to Prof. Cook, for securing the privileges we now enjoy of having imported queens free of duty.

WE have just received some samples of yellow bees from J. F. Michel, German, O., and from Leininger Bros., Fort Jennings, O. They are beautiful to look upon. While we should be glad to continue our notices of these yellow bees from other breeders, our space is so crowded that we shall be compelled to do so no more.

OH dear! we are having trouble with the Doolittle cell-cups. The bees clean 'em all out, build comb over them, and disregard them entirely in some cases. The fault is with us, for we have made them work, and we have a number of excellent reports from those who are succeeding with them. If others make a success of them we can.

HANDLING HIVES; THE BEE-KEEPER WHO IS GOING TO WIN.

WE would call especial attention to a valuable article on handling *hives* instead of frames, from the pen of that veteran bee-keeper, C. J. H. Gravenhorst, editor of the *Illustrierte Bienenzeitung*, a German bee-paper of no ordinary standing. This is a vital subject, and we are glad Mr. Gravenhorst has given his experience along this line. Close competition and poor *honey-seasons*, such as we have had, mean that we *must* produce a ton of honey with less labor, and that is, handling hives instead of frames. Mr. James Heddon deserves no little credit for advancing this idea of late; but he is by no means the pioneer in it. Since we have been handling fixed frames we have seen the possibilities in handling hives, and the time is fast approaching among *progressive* (not conservative) bee-keepers when they will find queens, ascertain the amount of stores, and diagnose a colony in a dozen other ways, with a tenth part of the labor. Old fogies need not poohpooh at this; if they do, they will be left in the race on profits. Let this subject be discussed. We have lots of room for such articles.

E. FRANCE, in a letter dated June 28, writes that the bees are gathering a very poor and dark honey, and but very little of that. Little or no honey he says is coming from white clover or basswood: The latter will be out of bloom in a few days. While this is discouraging for friend France, we have very encouraging reports from others; such as, for instance, "The best honey season ever known:" and, "Fine honey-flow," etc. At the Home of the Honey-bees the flow has been exceptionally good, both from clover and basswood. At this date, July 14, the latter is yielding honey, and clover is out, even yet.

WE never had such a rush for queens as now. For the past few weeks we have been sending out, on an average, about a hundred queens a week, and we have sent over forty in one day. With our large business in sending bees out in colonies and nuclei, it has been impossible for us to rear all these queens. In fact, it is nearly all our own apiary can do to rear queens for express orders. Those sent out by mail are reared by neighbors H. and Rice and two or three of the oldest and best queen-breeders in the South. We don't breed for color, but for gentleness and business. This, together with promptness, is what brings this rush of orders. In most cases we have sent queens by return mail.

THE NEW BENTON INTRODUCING-CAGE.

THE introducing feature of the new Benton cage works to perfection in our apiary. There is a small hole, $\frac{5}{16}$ in diameter, through which the bees eat out the candy. For 24 hours, only one bee can work at it at a time. For the next 36 hours, two or three bees; and for the next 12 hours, a dozen or so. In the majority of cases the candy is eaten out in 48 hours; but the hole is so small at the extreme end of the cage that it takes about another 12 hours for the queen to find her way out. This is quite an advantage. In 48 hours there might be *some* bees that would ball her; but it is very seldom indeed that they would attempt it inside of a cage. After many bees have been in there a while and gone out, they all come to regard her as the rightful reigning sovereign; and when she does get out, she is accepted. So far we are inclined to think it is the best introducing-cage we have ever had—equal to the Peet, and —oh so much less work! We are sending queens in it with success to all parts of the country. C. W. Costellow deserves credit for making the size just right for one cent, but our boys put on the introducing feature—let's see, way back in 1888.

THE NEW CLARK SMOKER.

WE have been making some decided improvements recently in the Clark smoker. One of these improvements was made at the suggestion of Dr. C. C. Miller; and that was, that the end of the fire-cup be perforated to admit of more draft. Another improvement consisted in perforating the under side of the smoker so that the fuel burns much more vigorously. Another feature is the substitution of a neat brass tube instead of a tin tube, that will occasionally send a stream of smoke "crosseyed" as it were. The new smoker is so much better than those sent out in 1890, and a part of this year, that our later customers will readily appreciate the change. We have obviated the fire-dropping features by means of the extra ventilating perforations, and the door is so constructed as to shut tight. The volume of smoke is almost as dense and conquering as that from the hot blast; and, at the same time, it will send it down six feet through a pile of supers. Dr. Miller is very much pleased with it, and says it will burn wet shavings. In a letter just received, he adds: "Do you know that, in the last year or two, you have practically reduced the price of the Clark to less than half, by making it *last* so much longer?" Those of you who have the old smokers can very greatly improve them by punching about a dozen nail-holes in the end of the fire-box, and as many more midway between the large end and the apex of the cone. Just try it, and see how much better it is. Then close the fire-door tight. By the way, the new fire-door is now so made that no sparks can drop out around it and burn dress, fingers, and hive-covers.

GOING BACK TO LANGSTROTH AND QUINBY.

How often, when we think we have invented something new, we find, by referring to Quinby or Langstroth, that the idea was first originated by them! There is a strong tendency now toward the flat cover. This we find described in Langstroth's work, issued away back in 1852. This flat cover is all complete with cleats nailed on the end. Everybody nowadays seems to be going back to the eight-frame idea. Why, that came from Moses Quinby, L. L. Langstroth, and Adam Grimm, away back in the 60's. Thick and wide top-bars is another new fad. Still, we find essentially the same thing described in Langstroth. Chancing, a few days ago, to look over some old hives, some that were made after Langstroth's early instructions, we observed that the frames all had top-bars $1\frac{1}{16}$ inches wide, and $\frac{7}{8}$ deep. The combs had been cut out of these frames; but by the propolis accumulations on them, it was evident that they had been used for a number of years. The remarkable part about it all is, that they showed no traces of burr-combs. Again, there is a very strong tendency toward fixed distances. Here again we are going back to father Quinby. Why in the world did we not catch on to these things earlier? And, again, is it not remarkable that fathers Langstroth and Quinby were so generally right?

STICKING TO OLD NOTIONS, OR RETRACTING ON REASONABLE EVIDENCE.

W. Z. HUTCHINSON, of the *Bee-keepers' Review*, has somewhat modified his conclusions in reference to the use or non-use of foundation in the brood-nest; and in a paper which he read before the Ohio State Bee-keepers' Association at Toledo he gave expression to these words: "I know it is not customary for authors or editors to acknowledge their errors; but, let me be editor or orator, I shall always proclaim what I believe to be the truth, even if it does conflict with my former published conclusions." That has the right ring to it, Bro. H. Would there were more authors, editors, and orators, or, if you please, *contributors*, who would be willing to retract some of their published statements. If there is any one thing that does the pursuit damage, it is the persistent clinging to old notions. A man who can not change his opinion occasionally, on reasonable evidence, is a man whose opinion should not be trusted too implicitly. We know of some people among the bee-keeping craft—good bee-keepers and contributors, who, when they have once published a certain view, never change it, and who go still further to bolster up and strengthen that opinion or supposed fact. As our readers know, we have abandoned the ten-frame idea and the beveled edge on hives—that is, we do not recommend them any more. It is no weakness to change your mind; but when it is necessary, come out and say so like a man.

IT'S OUT NOW

"ADVANCED BEE-CULTURE," a book of 88 pages, is now out. It begins with "The Care of Bees in Winter," and clearly and concisely goes over the ground, giving what its author believes to be the best methods, until the bees are again prepared for winter. Price, 50 cts. The REVIEW and this book for $1.25. If you are not acquainted with the "REVIEW," send for samples.

W. Z. HUTCHINSON, Flint, Mich

Please mention this paper.

FOUNDATION & SECTIONS are my specialties. No. 1 V-groove Sections at $3.00 per 1000. Special Prices to dealers. Send for free price list of every thing needed in the apiary.

1tfdb **M. H. HUNT, Bell Branch, Mich.**

In responding to this advertisement mention GLEANINGS.

HONEY A NEW DISCOVERY. Differing from all others ever yet made for the purpose.

EXTRACTOR.

It works strong, thorough, neat, handy and rapid, and is the cheapest Extractor known. Send 2-ct. stamp for a circular of 18 pages to REV. A. R. SEAMAN, Connellsville, Fayette Co., Pa. 5-15d

Please mention this paper.

IMPORTED QUEENS.

July, $4.00; Aug., $3.50; Sept., $3.00. Send in your orders now. Untested Italian queen, 75c. 7-17db

W. C. FRAZIER, ATLANTIC, IOWA.

In responding to this advertisement mention GLEANINGS.

Queens · From · Texas.

Kind friends, I have untested Italian queens from now till September, at 75c each; $4.00 for 6, or $7.25 per doz. I have shipped hundreds this spring, and all by return mail so far. I have my breeding yards kept out on the lone prairie at safe distance. Give me your orders and see how promptly I can fill them. 100 nuclei running. 10tfdb

MRS. JENNIE ATCHLEY,
Box V., Farmersville, Tex.

In writing to advertisers please mention this paper. 3-8db

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.

NOVELTY CO.,
6tfdb **Rock Falls, Illinois.**

In responding to this advertisement mention GLEANINGS.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.

M. S. ROOP, 520 East Broadway,
6-17db **Council Bluffs, Ia.**

In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIAN HONEY QUEENS

A combination of best honey-gatherers. Bred in America. Try one. Each, $1.00; six for $5.00.

THE MISSOURI BEE-KEEPER.

A monthly journal devoted to practical bee-keeping; 50c a year. Above journal one year and one queen, $1.15. Sample copy free. Address

15-16d *E. F. QUIGLEY, UNIONVILLE, MO.*

In responding to this advertisement mention GLEANINGS

TESTED ITALIAN QUEENS,

REARED FROM IMPORTED MOTHERS,

At 90 cts. each; untested, 60 cts. each; ½ doz., $3.00.

W. A. COMPTEN, Lynnville, Tenn.

In responding to this advertisement mention GLEANINGS

Boxes and Shipping-Crates.

EVAPORATED APPLE-BOXES and SHIPPING-CRATES A SPECIALTY.

In this line we take the lead. If any one reading this ad. will send us the name of driers we will make it right with them. Send for prices. Address

W. D. SOPER & CO., JACKSON, MICH.

15-17-19-21d Please mention this paper

Punics. Apis Niger. Punics.

The most wonderful race of bees on earth. Full description of these bees with prices of queens, full colonies and nuclei, in the August (1891) American APICULTURIST. Sample copies free. Address

15tfdb **HENRY ALLEY, Wenham, Mass.**

Please mention this paper.

Five-Banded Italians.

My 5-banded breeding queen, with her bees, took **First Premium** last fall at the Detroit exposition. Price of untested queens, $1.00 each, or 6 for $5.00; tested queens, $2.00 each; select tested, $3.00 each. Safe arrival guaranteed. Make money-orders payable at Flint, Mich. 15tfdb

ELMER HUTCHINSON,
ROGERSVILLE, GENESEE CO., MICH.

Please mention this paper.

---

16 SWARMS OF GOLDEN ITALIAN BEES FOR SALE at $3 per colony; all on wired L. frames, built from foundation in chaff hives.

15-16-17d ***T. S. THOMPSON,***
Box 240. Blairsville, Indiana Co., Pa.

UNTESTED QUEENS CHEAP. I have 25 untested queens which I wish to dispose of, and offer them at 50c each. They are reared from one of Doolittle's select queens. Those who wish a nice queen speak quick. P. BROWER, New Paris, Ind.

FALL PLANTS HATCHING AND FALL PLANTING PAYS. Brown and white Leghorn, Plymouth Rock, and Black Minorca Eggs, $1.25 per 13. Strawberry plants, 100, $1; 1000, $3.50. Raspberry plants, 100, $1.50; 1000, $5. Illustrated circular free. GEER BROS., ST. MARYS, MO.

Please mention this paper.

BEE-HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
14tfdb *HIGGINSVILLE, MO.*

Please mention this paper.

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SPECIAL NOTICES.

Something new in hives in our next number. Look out for it in this department.

CHINESE ROSE WINTER RADISH.

Now is the time to sow this, the most handsome and delicate of all radishes, in our opinion.

SPINACH.

This is the month I should prefer to sow spinach for fall, winter, and spring use. We have a nice lot of seed, just gathered, of our own raising. Ounce, 5c; pound, 25c; 5 lbs. or over, 20c. per lb.

STRAWBERRY-PLANTS DURING AUGUST.

As we are having about all the orders we can handle without any advertising, we do not feel very much like urging people to buy. The demand for the Sterling is already beyond our capacity; but we can probably keep up on any of the other four kinds. We are going to push the Sterling the very best we know how; but as it is slow in making runners and plants, we fear we shall not be able to catch up as we did on the Haverland last year.

THE AMERICAN PEARL ONION-SETS.

We have finally made out to get ten bushels of these new onion-sets, and we can fill orders promptly—at least so long as the ten bushels last—at the following prices: Pint, 20c; quart, 35c; half a peck, $1.25; peck, $2.25; bushel, $8.00. If wanted by mail, add 10c per quart extra for postage. Now, please remember, friends, that all we can say for these sets is that, in our locality, they wintered over perfectly. We planted them in the fall, as I have told you before, and they came right up and made a nice growth; and every one—or, at least, nearly every one—started and grew in the spring, and made great big handsome white onions, long before any thing to be compared with them was found in the markets, and long before we succeeded in getting any good-sized onions from those started in the greenhouse. The great achievement is, that you do all the work in the fall of the year. They can be planted any time during this month or next. We shall put out our own at once. We do not know whether these are the same thing as the Bloomsdale or not. You will remember that some of Landreth's people think it somewhat risky to put out the Bloomsdale pearl in the fall, in our locality.

HONEY, COMB AND EXTRACTED.

We are beginning to get some inquiries for new honey, and also have a good deal offered us. A large part of the offerings contain honey-dew. We have only one or two outlets for such honey, and these seem to be well supplied at present. We have received several lots of choice extracted honey, which we offer as follows:

Linn (or basswood) honey in barrels, @ 7½ cts. per lb.; in 60-lb. cans, @ 9 cts., or a full case of two cans @8½ cts. per lb. In lots of four cases or more, 8 cts.

Clover extracted, 1 ct. per lb. more than basswood.

We have also a supply of choice new comb honey in 1-lb. sections, 24-lb. cases, that we offer at 18 cts. per lb., in lots of four cases or over. We have also a little of last year's choice comb honey in 48-lb. cases, 1-lb. sections, at 2 cts. per lb. less than this year's.

GLASSED CASES OF COMB HONEY MUST HAVE GLASS COVERED FOR SHIPMENT.

Among the recent rulings of the Western Classification Committee we find the following: "June 23d. Honey in comb, packed in boxes having glass fronts, should not be received for shipment unless fronts are fully covered and protected." From our experience this ruling will work mischief unless honey is crated as outlined on p. 643. If comb honey is so crated I think it will pass under the ruling, and it was no doubt intended to enforce such crating or protection that the ruling was made. If, however, instead of crating your honey you simply cover the glass with a board, as you will no doubt be obliged to do unless the ruling is changed, your honey will fare worse than before. When, by means of the exposed glass, the freight-handlers can see the contents they are more likely to handle with care than if in a solid box; at least, this has been our experience. From this point of view the ruling is unjust to bee-keepers; and if they desire to have it changed, the person to write to is J. T. Ripley, chairman, Room 733, The Rookery, Chicago, Ill. Remember, this ruling applies on the roads west of Chicago and St. Louis, not in the territory east of these points.

GOODS FOR EXHIBITION AT FAIRS.

Inquiries are already coming in for our terms on goods for exhibition at fairs. We are prepared to make the same reductions we have done for several years past. The articles on which we will allow a discount of 25 per cent are only of our own manufacture, found on pages 10 to 27 of price list, and there are some exceptions on these pages; namely, Bingham and Quinby smokers, rubber gloves, implements for bee-hunting; Whitman and Smith sprinklers; Chicago zinc; Stanley extractors; honey-knives; burlap; cheese-cloth; duck; enamel cloth, etc. Only enough for exhibition purposes are furnished at this reduction, and on condition that you distribute judiciously the advertising matter we send along with the goods. We have hardly received sufficient returns from our return advertising cards to warrant offering an A B C or GLEANINGS free for their distribution, as we did last year. If, however, you will send 25 cents to cover postage we will furnish you GLEANINGS one year free. Or, for 40 cts., a cloth A B C free for distributing the advertising matter we shall send. Where we can send the printed matter with other goods by express or freight at your expense there will be no postage charge, and the terms will be the same as before.

THE PURPLE-TOP WHITE-GLOBE TURNIP.

We have received from one of our bee-keeping friends a whole two-bushel bagful of nice seed, on which we give you the following very low prices: Ounce, 5c; ½ lb., 20c; pound, 35c; 5 lbs. at 30c per lb.; 10 lbs. at 25c per lb. If wanted by mail, add 9c extra for postage and packing. We are now selling these turnips on our wagon, and they may be sown in most localities, with a good chance of a crop, almost any time during the present month of August. I have just learned *why* it is best to sow turnip seeds just after a rain rather than just before. If sown just before a heavy rain, in many soils the ground may bake so hard that the plants can not get through the crust. If, however, you prepare your ground before the rain, and then break the crust again just after the rain, and sow your seed in a loose soil, there is a good chance of its germinating and getting through the ground before another rain comes. Of course, all depends very much on the way the rain comes. The White Egg we place next for a late turnip. The Breadstone is perhaps the most toothsome of all turnips, but it takes longer to mature than the two first mentioned. If sown at once, however, and we have a late fall, you will get nice turnips for table use even yet. The Southern Prize and Seven-top turnips may be sown any time, for they stand the winter without injury.

SUPPLIES! Standard Goods. Best shipping point. Reasonable prices. Thirty-page Catalogue free. WALTER S. POUDER, 175 E. Walnut St., Indianapolis, Ind.

HONEY COLUMN.

CITY MARKETS.

SAN FRANCISCO.—*Honey.*—There is a good demand for honey, both 1-lb. frame and extracted and the crop in California is only a short one Comb honey will be in limited quantities. and later on an active demand. at advanced prices, is expected. We quote extracted honey, 5½@6. Comb honey, 1-lb. frame, 13@14; 2 lb., 11@12. *Beeswax* is scarce but without transactions; we quote 26@27c.

SCHACHT, LEMCKE & STEINER,
July 22. San Francisco, Cal.

NEW YORK.—*Honey.*—Honey is coming in quite slow, still there is no great demand. From hearsay there will be a good crop, but it is rather early yet to predict what it will be. A few carloads California extracted honey were sold here from 7@7½ per lb. We expect a good trade this fall, as all the old comb honey of last year has been pretty well cleaned up.

CHAS. ISRAEL & BROS.,
July 27. 110 Hudson St., New York.

CINCINNATI.—*Honey.*—Demand is fair for new comb and extracted honey. The supply of comb honey is adequate to the supply; that of extracted honey, in excess, of course, as usual at this time of the year. Extracted honey brings 5@8c on arrival. Choice comb honey, 14@16c in the jobbing way. *Beeswax*, there is a fair demand at 23@25c on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
July 20. Cincinnati, O.

ALBANY.—*Honey.*—We have sold the consignment of honey referred to in last issue, at 16c. Have some on hand at present. Would advise early shipments if only a few cases. Extracted, dull We quote: clover in pound sections, 18c; 1½-lb, 15@16c.

CHAS. MCCULLOCH & CO.,
July 20. 393-397 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—About comb little can be said until season commences. Extracted is in fair demand; California is scarce for spot cash; selling at 7½, against 7c to arrive. Florida in good supply 7@7¼; southern, 70@80c per gal. *Beeswax* selling slowly; supplies are more freely offered; prices a shade lower, 28@29. F. G. STROHMEYER & CO.,
July 20. New York.

BOSTON.—*Honey.*—No change in honey market. Slow sale. Little new honey ready now to be sent in. Expect to sell at 18c for best quality.

BLAKE & RIPLEY,
July 20. Boston, Mass.

KANSAS CITY.—*Honey.*—Receipts of new comb arriving very slow. Choice white 1-lb. comb, 15@16; dark, 10@12; extracted, 6@6½. *Beeswax*, 22@25.

CLEMONS, MASON & CO.
July 20. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Market dead dull at 5½c in barrels; 7c in cans. Comb unsalable. *Beeswax*, prime, 26½. D. G. TUTT GROCER CO.,
July 22. St. Louis, Mo.

NEW YORK.—*Honey.*—Our market is well supplied with extracted. Receipts are heavy and demand rather light. Common, 65@68c per gal.; good to choice, 70@72; orange bloom. 7@7½ per lb.; California, 6¾@7. We received a few small lots of new comb honey, white, 1-lb., unglassed; same sells at from 14@15c. *Beeswax*, dull and declining, 26@28c.

July 23. HILDRETH BROS. & SEGELKEN,
28, 30 West Broadway, New York.

DETROIT.—*Honey.*—New comb honey selling at 13@15. Not much demand. Extracted, 7@8c. *Beeswax*, 27@28c. M. H. HUNT.
Bell Branch, Mich., July 20.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

WANTED,—Comb and extracted honey.
WALTER S. POUDER, 175 E. Walnut St.,
Indianapolis, Ind.

FOR SALE.—About 2000 lbs. of white-clover honey, in 60-lb. tin cans. For prices and samples, address
LEININGER BROS., Ft. Jennings, O.

60-lb. cans extra linn honey, 7½ cts.; dark, 4½. Same in sections, 12-lb. cases, 13 and 7 cts.
OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

CONVENTION NOTICES.

The Rock River Bee-keepers' Association will hold its next semi-annual meeting on Thursday, Aug. 6. J. M. BURTCH.
Morrison, Ill.

The Darke County Union Bee-keepers' Society will hold a basket meeting on the fairgrounds at Greenville, O., Aug. 22d. All are invited. J. A. ROE, Sec.

—MY NEW—
THIN DOUBLE-WALL HIVE
Is the best summer and winter hive yet devised. Takes regular "L" furniture. Is lighter than ⅜ single-wall hive; may be storified to any extent, etc., etc. Send for descriptive circular, mentioning the New England hive. Special low prices for 1891 to introduce it. A full line of bee-keepers' supplies always in stock. Catalogues free.
C. W. COSTELLOW, Waterboro, York Co., Me.
Please mention this paper. 15-19-23d

Golden
Carni-Italians
Golden Italian Queens mated to Carniolan drones produce the largest, gentlest, most beautiful and best working bees of any I ever saw. Queens, $1.00 each. Sample bees and circular free.
15tfdb ***J. A. ROE, UNION CITY, IND.***
Please mention this paper.

A FEW Carniolan queens for sale at 50c each.
A. A. SIMPSON, Swarts, Pa.

100 PURE ITALIAN QUEENS
For the next 30 days will be sold as follows: Tested queens, $1 each; untested, 75c each; 3 for $1.75; 5 or more, 50c each All queens bred from select imported and home-bred queens. Safe arrival guaranteed. **D. G. EDMISTON,**
15-19d **Adrian, Lenawee Co., Mich.**
Please mention this paper.

WANTED.—To rent an apiary of one or two hundred colonies. Southern States preferred.
H. FITZ HART, Avery P. O., La.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

75 hybrid queens for sale at 30 cts. each, 50 cts. for selected. Most are clipped and young.
CHARLES H. THIES, Steeleville. Randolph Co., Ill.

A few mismated Italian queens from a honey queen, 30 cts. each.
W. W. KULP, Pottstown, Montg. Co., Pa.

We have a few mismated Carniolan queens 1 year old. They are fine, large, prolific queens. Prices: 1 queen, 25 cts.; 5, $1.00.
F. A. LOCKHART & CO., Lake George,
Warren Co., N. Y.

25 mismated Italian queens for 20 cts. each, or 6 for $1.00. J. W. TAYLOR, Ozan, Ark.

Hybrid queens for sale at 25 cts. each.
MRS. A. A. SIMPSON, Swarts, Pa.

PASTEBOARD BOXES.

CRAWFORD'S SECTION CARTONS ARE JUST WHAT YOU WANT.

SEND FOR NEW PRICE LIST.

A. O. CRAWFORD,
11tfdb *SOUTH WEYMOUTH, MASS.*

☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIAN QUEENS.

Our 5-banded Italians are giving perfect satisfaction; gentle, excellent workers, non-robbers, and the most beautiful bees in existence. Won first premium at Illinois State Fair in 1890. The judge said, "The drones are the yellowest I ever saw." Queens warranted purely mated; and replaced if they produce hybrid bees. One warranted queen, $1.00; six for $5.00; tested, July, $1.75; after, $1.50; selected tested, $3.00; breeders, the best, $5.00. No foul brood. Safe arrival and satisfaction guaranteed. Reference, our P. M. S. F. & I. TREGO, Swedona, Ills.

Please mention this paper. 1tfdb

OTTUMWA BEE-HIVE FACTORY.

We have a nice supply of hives in the flat, which we will sell as follows: The A. I. Root Simplicity, for extractor, $1.50; 5 for $7.00. Simp. for comb honey, with 2 T supers, sections, foundation starters, wood separators, and honey-board cŏmplete, in flat, each, $2.10; 5 for $10.00. Portico hive with Simplicity upper story, in flat, for the same price.

The improved Langstroth-Simplicity, in flat, eight-frame, 1½ story, each, 90 cts.; 5 for $4.00; ten-frame, 1½-story, each, $1.00; 5 for $4.50; eight-frame, 2-story, each, $1.20; 5 for $4.75; ten-frame, 2-story, each, $1.30; 5 for $5.25. Dovetailed hives, the same price as the eight-frame hives above.

SHIPPING-CRATES.

12-lb. crate, 11 cts. each; 16-lb., 13 cts.; 24-lb., 14 cts.; 48-lb., 16 cts. each.

Comb foundation.—Heavy brood, 48c; thin, 58c; extra thin, 68c.

Pound sections, snow-white, at $3.50 per 1000. No. 1, cream, $3.00. Bee-veils, cotton tulle, with silk tulle face, 75 cts. each. Bingham smokers at manufacturer's prices. Write for prices to 5tfdb

GREGORY BROS. & SON, OTTUMWA, IA. SOUTH SIDE.

☞In responding to this advertisement mention GLEANINGS.

TAKE TIME TO ORDER,

And get New Stock into your Apiaries For the Next 30 Days.

Golden Italian queens, bred for business! bees work on **red clover.** Tested, $1.10; 3 for $3.00; untested, 70 cts.; 3 for $2.00; 12 for $7.00. Nuclei at a bargain. **Hives, Sections, Foundation,** and all kinds of **Bee-keepers' Supplies** in stock. Catalogue free. 9tfdb

JOHN NEBEL & SON, High Hill, Mo.

Please mention this paper.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians,** the result of twelve years' careful breeding. Reduced prices: Warranted queens, 80 cents each; 3 for $2.00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 11 years, 505 queens. Circulars free. 13-14d

J. P. MOORE, Morgan, Pendleton Co., Ky.
Money-order office, Falmouth, Ky.

Please mention this paper. 7d

SEND NOW to P. H. Fellows, Brodhead, Wis., for Strawberry-plants. Crescent and May King, 60c per 100; $4 per M. Bubach and Jessie, 75c per 100.

Mention this paper. 14-15-16d

ITALIANS

Tested queen, $1.25; Untested, 75c. Nuclei, brood, and bees by the lb. Send for price list.

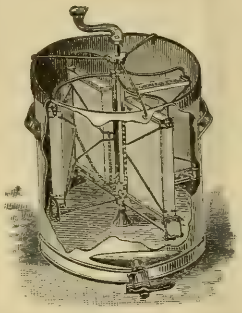
MRS. A. M. KNEELAND,
9tfdb Box 77. Mulberry Grove, Bond Co., Ill.

Please mention this paper.

I RE-QUEEN EACH SEASON,

Consequently am selling fine one-year-old Italian queens, tested, at 75 cts. each.

14-15-16d J. C. WHEELER, Plano, Illinois.



EVERY THING USED BY *BEE-KEEPERS.*

EDWARD R. NEWCOMB.
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

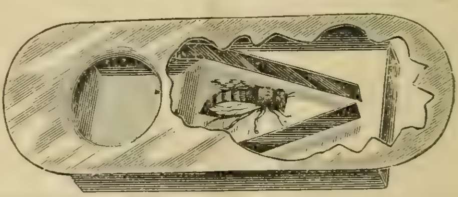
Bee-Keepers' * Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

☞In responding to this advertisement mention GLEANINGS.

Porter's Spring Bee-Escape.

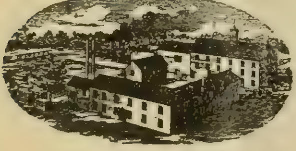


We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*

☞In responding to this advertisement mention GLEANINGS.



A glimpse of our Factory, now making carloads of **Dovetailed** Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue.** 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

Published Semi-monthly at $1.00 per year, by A. I. Root, Medina, O.

Vol. XIX. AUGUST 1, 1891. No. 15.

STRAY STRAWS

FROM DR. C. C. MILLER.

COOL summer.

"THE CARNIOLAN race, or strain, of bees is the original yellow race."—Henry Alley, in *American Bee-keeper*.

KILLING QUEEN-CELLS is a nice thing in theory, but we're tired of it at our house. Some cells are sure to be missed.

E. R. IS MIXED about that foundation-fastener. It's one of the things I thought worth trying, and I tried it the first good chance I had.

PROF. COOK says, in *A. B. J.*, that a student came from Japan to Michigan Agricultural College purposely to take a course in apiculture.

"WHENEVER YELLOW is found among bees in Carniola it is to be taken as evidence of Italian blood."—Frank Benton, in *American Bee-keeper*.

SAY, E. R., isn't that rather heavy stimulative feeding to use quart jars and then "put about a dozen of these feeders to each hive"? (p. 561).

THE NAMELESS DISEASE, if I am not mistaken, is called bee-paralysis (*Bacillus depilis*) in *B. B. J.* It's time the nameless thing had a name.

THE *White Mountain Apiarist* champions the black bee, and says it is as good as, if not better than, the Italian for honey-gathering and wintering.

LATELY I found a good-sized worm in foundation that had been lying a year with paper packed between the sheets. I never met the same thing before.

WHEN A QUEEN flies away when you catch her to clip, we are told just to let her alone and she'll come back. Sometimes she does with me, but oftener she doesn't.

PRICE OF HONEY hasn't come down as much as I expected at this date (July 16). In a good many localities honey will be honey this year, and it may not be wise to sell it for a song.

FRIEND ROOT, tell E. J. Purcell (p. 557) to put his queens in penny cages and give them to a colony to care for. I've kept seven in one hive. But it's safest to cage the queen of the colony.

DADANT & SON (*A. B. J.*) say that queen-excluders are a nuisance; that only a few queens go up into supers not oftener than once every four or five years. In working for comb honey I haveno need of excluders to keep queens down; but for other purposes I think a good deal of an excluder that excludes.

CALVES, the other day, in the Wilson apiary, amongst other mischief, knocked off five supers which the bees robbed out. Sheep are not so bad, although they have moved some hives on their stands, and horses have never done any harm at all.

COLD NIGHTS, or something else, has hindered the bees in their work a good deal of the time. Still, I think I'm going to have a better crop than for years. White clover is a sea of white; linden, enough to make itself felt; and four or five hundred acres of cucumbers will keep the bees out of mischief till frost.

BRITISH BEE-KEEPERS are asking for a cheaper rapid bee-feeder, 75 cents being considered at present low for any thing in that line. Why don't our British cousins try the Miller feeder at one-third the price, holding 20 pounds, and requiring only to lift the cover to refill? Since Mr. Warner improved it, it is really a valuable article.

WHITE CLOVER is the only thing I have ever counted on for surplus, but I find there is more linden here than I had supposed; and for a few days it made quite a difference in the storage. Every tree seemed to have all the blossoms there was place for. Without a good deal of looking, one doesn't always know thoroughly the honey resources of his locality.

J. M. HAMBAUGH, the man that secured $500 annually from the legislature for the bee-keepers of Illinois, produced 15,000 pounds of honey from 18 miles of territory. He figures out that, if the whole State produced at the same rate from its 56,000 square miles, it would produce 46,665,000 pounds, or nearly double the census report of 1890 for the whole United States. (*A. B. J.*)

LANGSTROTH, in his book, gave a cut showing a cell made by the bees, having an acute angle. Cheshire referred to it, and gave a cut to show that the cell "is such that no bee ever did or could construct." Without naming either, Cowan, in the "Honey Bee," gives illustrations of several acute angles taken from actual combs. But Dadant, who has found several such cells, says they don't go the full depth in that shape.

THOSE REPLIES on page 555 make me scratch my head. All agree that I have no right to overstock territory occupied by another bee-keeper, and I'm afraid some one will yet say that there ought to be some kind of a law to secure him in his rights. For pity's sake, don't. It's all right to make laws about every thing else under the sun, so as to make bad people do right; but bee-keepers are exceptions, and don't need any laws to make them do right.

FRIEND BINGHAM, you almost frightened me by suggesting, on page 556, that I withheld credit from father Langstroth. Of course, I wouldn't. But is it necessary to use his name every time we speak of movable frames? Have you done it? Rather than withhold any credit from him, however, I'll say closed-end Langstroth movable frame, Hoffman-Langstroth frame, or how would *you* write that item on p. 457, any way? But, say; why are you coming at *me* for it? I'm only using names that others have been using this long time. Go for those New York fellows, and don't come at me just because I live out west.

DIVIDING COLONIES AFTER THE HONEY HARVEST.

WHAT DOOLITTLE THINKS ABOUT IT.

Beside me lies a letter containing the following, in substance: "Our harvest of white honey will soon be over, and my colonies are all strong as to numbers. Not having as many bees as I wish, I propose to increase those I have, by division, as soon as the flow is over, and wish to do it in such a way that a good crop of honey may be secured from fall flowers. How shall I do this?"

There are various ways of doing this; but as I have a way which is successful with me I will give it here for the benefit of all who may care to try it. In the first place, nuclei should be started at once, so that we may have laying queens at our disposal when we come to the increase. Having these queens, the honey harvest being over for the present, and we being otherwise ready for action, the second thing we shall want is a box holding about a cubic foot, wire-cloth sides, similar to what I have described in back numbers of Gleanings, and the same as described in "Scientific Queen-rearing;" together with a large funnel, such as is used to put up bees by the pound with. These, with our lighted smoker, are to be taken to the apiary, when one of the hives is to be opened, the queen found, and the frame she is on set outside of the hive for the time being, till we have taken out a third of the combs with the adhering bees, when this frame is to be returned. The frames now outside of the hive are to be gently jarred a little to cause the bees to fill themselves with honey. While they are filling themselves with honey we are to go to another hive and treat it exactly the same as we did the first, when we go back to the first and shake all the bees off the combs which are outside the hive, down through the funnel into the box, immediately taking it to the second hive and shaking the bees there down into the same box, when the frames of brood and honey are to be returned to their respective hives, after first removing the funnel and closing the box. If this work is done toward night no trouble from robbers will be experienced, and the bees will be better prepared for what is to follow. Just before dark, taking plenty of time to find the queen readily before it is too dark, go to your nucleus and secure the queen from it, having her in a provisioned cage, the new West cage being particularly adapted to this purpose. Having the queen in the cage, go to your darkened, cool room (where the bees should be left while they are in the box), and, by setting the box down suddenly, drop them all to the bottom, when the caged queen is to be hung in so the cage touches the top of the box, and the bees left till the next morning. When going to put the queen in, you will find them in great commotion, and "crying" over their queenless condition; but in an hour after the caged queen has been put in they will be all quiet, and send forth a satisfied note, as much as to say, "We are now prepared to make a future home of this place if need be;" while in the morning they will be clustered as snug and compact as any swarm. Early in the morning, before robbers are around, the same two hives are to be opened, and a third of the combs are to be taken from each, having the honey and brood correspond in about the same proportion as that left in the hives, the bees from these combs all brushed off and allowed to go back, the hive filled out with combs, comb foundation, or dummies, as you prefer, when these new beeless combs of brood and honey are to be put into an empty hive, the same placed on the stand you wish it to occupy, and the one-third vacant space filled out the same as you did the others. The clustered swarm of bees is to be hived in this hive, the same as you would hive a natural swarm, the same being accomplished by removing one side of the box, which should be easily removable for this purpose. In this way you will have three good colonies in place of two (which would be as great an increase as I would recommend at this time of year, if I expected to secure a yield from fall flowers), and it is one of the very best plans of artificial increase that I know of. If done early in the season, when the bees are about to swarm naturally, it would do well to take half the bees and half of the combs, so that the colonies could be doubled, if increase is preferred to honey.

Many, who can not be with their bees, on account of work which keeps them away from home during the middle of the day, will find in this an easy and good plan of controlling swarming, and yet have their bees in good condition all the while. I forgot to say in the right place, that, as the bees are running into the hive, the queen should be let out of the cage and allowed to run in with them. Formerly I always put the queen in with the bees after they were "crying" for her, without caging, and, so far as I am concerned, generally had good success; but some report failures, which thing can not result by the plan here given, for the queen can not be harmed until she has become a part of the newly formed colony, when, of course, they will not injure her. In reading this many will exclaim, "This is lots of work!" but after a little practice you will find that it takes hardly as much time as it does to read this article, and put you in a place where you are master of the situation, every time, and also gives you just the right division of matters and things, so that the right proportion of bees and brood is in each hive, and all ready to go to work to the best advantage, on all subsequent bloom, so that all are in readiness for winter when it arrives, and generally a good yield of honey.

Borodino, N. Y. G. M. Doolittle.

FUSSING WITH BEES.

SOMETHING ON THE OTHER SIDE.

"Don't fuss too much with your bees," say some of the writers for the bee-journals. "Don't tinker with your bees unnecessarily," says Dr. Miller. "Mr. G. de Layen's plan for an out-apiary is to have very large hives, and visit them only twice a year, spring and autumn" (Dr. Miller, page 155, Gleanings). "If you wish a large yield of section honey, keep prolific queens, and let the brood-combs alone, after they are once filled with brood in the spring," says G. M. Doolittle.

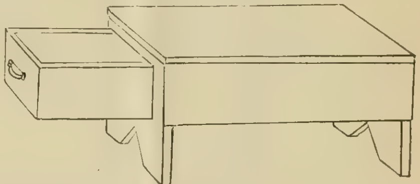
My young bee-keeping friends, and those of the South in particular, don't let such statements and advice as the above lead you astray.

Some of it is all right, and more of it may answer fairly well for men of such experience as can tell pretty nearly the condition of a colony by a glance at its entrance or in at the top of the hive; but I will venture the opinion that he who does not examine each colony sufficiently to know its exact condition, at least once in from one to two months, and oftener in the working season, will find plenty of evidence, through the year, to prove that a little closer attention would have been profitable. Don't fuss too little with your bees. "Prevention is better than cure" in bee-keeping as well as in the care of one's bodily health. The very best way I know of to prevent the evils of fertile workers, foul brood, queenless colonies, starving out, drone-laying queens, ants in the hives, mice, robbing, etc., is to "fuss" with your bees often enough to thoroughly know their condition, and remedy these evils before they exist, or, at any rate, as soon as the first symptoms appear.

In Florida it is possible to carry on an apiary year after year without the loss of a colony. I do not know that there was a colony lost from my apiary, from any cause, for nearly three years at one time, and yet in some of the apiaries here it is not uncommon for the number of colonies to vary from year to year as much as in poorly kept apiaries of the North. Why is this? If it is not for the lack of sufficient intelligent fussing with the bees, then I should like to have some one rise and state the cause. Without close attention to the apiary, bee-keeping goes back to a matter of luck, as of old; and he who trusts to luck usually gets it and becomes a malcontent in the long run, though success for a time may make him proud of his method, or lack of method, rather. Do not understand me that I advise overhauling each colony from top to bottom, every four or five days, though a novice who begins this way is more apt to succeed eventually than one whose interest is not so thoroughly awakened; but do not, even at the end of the honey season, close the hives and then forget them for months. Through the fall, many queens are superseded. Some may get lost in mating. If you watch them you know where this is the case, and you also know whether you have ripe queen-cells to supply the need. These may be plentiful to-day, but hatched to-morrow. If you are not well acquainted with your bees you have to start from the egg, even though there are such cells in the next hive, or you will not discover the need, and after a while you see a case of robbing; and, looking into the hive, find another case of the bee-moth eating up your bees. Too late then to save the colony. Is it a fact that it is as harmful to the prosperity of the bees to open a hive as many declare? I think not. Neighbor O. O. Poppleton tells me that, instead of the moving of bees being a detriment to them, if properly done and not carried too far, in his experience it has proven a benefit, and seemed to stimulate them to more energetic work. He has had a good deal of experience along this line, is a careful and observant man, and not inclined to hazard his reputation as a skillful apiarist on mere guesswork. His statement I accept with confidence, though contrary to the teachings of some; and, if true, I should say that the disturbance of looking over a colony of bees, when there is honey in the fields, should stimulate them sufficiently to more than counterbalance the cost in time and honey. I will also say, that I believe that a bee-keeper who is thoroughly posted at all times on the condition of his bees will also be so alive to their requirements and prejudices as to get all the information necessary without the bees hardly noticing his presence.

SEATS WHILE WORKING OVER HIVES.

What shall we sit upon when opening hives? Why, stools, of course. Is a hive-cover, a box, or any other device so handy and comfortable as a light stool with a drawer opening at the end, in which to carry the bee-brush, smoker-fuel, matches, scissors, slates, queen-cages, and queen-cells? Then at the other end have a couple of sockets—one for pencil, the other for a heavy knife or chisel. Take this stool by the wire handle in one hand, your smoker in the other, and you have all you need for ordinary work. Something of this kind, but of a different pattern, was illustrated years ago in GLEANINGS. This one is better than that was, as the tools can be got at while sitting upon it; and scraps of wax, with honey adhering, can be shut away from robbers. I was surprised that friend Root did not call attention to that one when this matter was up for discussion lately.



HIVE RECORD.

Like Mr. Root, I can not understand the line of reasoning that can cause a bee-keeper to use either bricks or heavy stones on the cover of a hive, as an indicator of the colony's condition, when so handy a device as a little slate is so easily obtained. My slates hang at the back of the hive on one of three tacks. Its position shows whether the colony requires immediate attention—attention as soon as convenient, or is in good shape every way. The slate gives particulars, also the age of queen, and whether clipped or not. It takes me nearly a year to cover one side of one of these small slates, as I have a system of indicating a good deal in a small space.

SHADES.

Then, too, the idea of handling a big shutter of boards or iron, or some other material, in addition to these heavy rocks, etc., every time a hive is to be opened, is one that fills me with wonder, and makes me tired to think of. If I had them I don't know but I should be content to fuss very little with my bees, and get a very little crop of honey as a consequence. Here I have, as before stated, a light arbor covered with palmetto-leaves, or scuppernong grape-vines. The first are lightly tacked on with a four-penny nail through the stem close to the leaf. These can be easily knocked off in the fall, and make a good mulch for the orange-trees. The grapevines put on leaves and fruit at the time shade is required in the spring, and drop the leaves at the right time in the fall. Nothing could be pleasanter than these shades to work under in the summer, and they serve every purpose of shade, both for bees and owner. If something of this kind is constructed in the northern apiaries, I feel sure that they will be found far more satisfactory than the shade-boards and rocks. If the covers blow off, construct them differently, or use hive-clamps. I have never had a cover blow off that I know of, and I use no device to hold them on. There is no chance for the wind to get hold of them.

It must be remembered, however, that a good bee-tent, to be placed over hives that are opened during a honey dearth, is an absolute necessity. Without this prudent protection against robbing, a very little fussing may become altogether too much, and that in a very few minutes. Judgment should enter into all your work. W. S. Hart.

Hawks Park, Fla., June 17.

A VISIT TO MR. THOMAS PIERCE.

BY BRODIE G. HIGLEY.

I previously notified Mr. Pierce of my intention of paying him a visit. After wading through the mud for five miles on foot, which took me about two hours, I was at the station. Stepping aboard the train, which soon arrived, I was soon on my way to Gansevoort. On arriving here I was directed to Mr. Pierce's dwelling, which is only a step from the depot. Knocking I was soon in the presence of my young friend who has lately retired from business, being somewhere about 70 years old. Through the foresight of his genial companion they had put off dinner till I came. How my heart filled with joy after sitting down, to hear praise go up to the God that had cared for him all his life! Our conversation naturally led to bees; and by the time dinner was over the bees got quite lively; and before they became quieted we were out in the bee-yard.

THE BEE-YARD.

His bee-yard is very nicely arranged, some 10 or 12 rods from the road.

"Do the bees trouble your neighbors?" I asked.

"No, not to amount to any thing. I generally remedy it all by giving the persons troubled some honey, which keeps them good natured."

STOREHOUSE FOR HIVES.

The next place was his barn, which is now used for storing away hives and fixtures in the barn. He has a box which is moth and mice proof for the storing-away of combs. In this he also keeps his swarming fixtures, which have before been illustrated in Gleanings. His honey-house is nicely arranged some few steps from this.

WORK-SHOP.

In this he has an improved engine which runs a planer (one of the best kinds), and saw. The saw is one of his own make, being strong, to be run by steam power. He used to make the old-fashioned 2-lb. nailed section, which looked almost as nice as our four-piece dovetailed sections. He buys his sections now, they being so cheap that he can not afford to make them. Those he made showed fine workmanship.

STORE FOR SUPPLY-HOUSE AND BEE-CELLAR.

A store built some 20 years ago is now used for a store room. This is a commodious structure, and gives plenty of room for a bee-keeper's supply-house. As Mr. Pierce is a supply-dealer, it comes quite handy. His bee-cellar is under this. He was wintering about 75 stocks. They were wintering rather badly. He attributes it to low temperature, saying that bees winter better with him with a high temperature, say 50° to 58° F. To maintain this temperature he uses artificial heat. He futhermore says he can show a good average in favor of high temperature for the past five or six winters. This is the cellar that is shaken every time a train goes by.

HIS HIVE AND WAY OF WINTERING.

For winter he places a sort of Hill device over the frames, and over this a cotton cloth, which is attached to a box without top or bottom, which fits the top of the hive. Upon this a chaff cushion is put, then he raises the hive from the bottom about two inches by blocks. This, he says, gives them sufficient ventilation and escape for dead bees. His hive is the modified Langstroth, two Manum clamps exactly covering the top of it.

MIDDLEMEN, PRO AND CON.

"Mr. Pierce, what do you think about middlemen in connection with the honey industry?"

"Well, there are some that are a damage to the producer, but on the whole they are an advantage."

CHEAP OR COSTLY CONTRIVANCES.

"Well, Mr. Pierce, what is your conclusion as to the advisability of using cheap or costly hives and fixings? Do you think that it would pay to go to the extra expense of having every thing of the very best?"

"No, I do not, for a hive that would cost half the cost of mine would answer just as well."

"Don't you think that this is too often the case with the over-zealous beginner?"

"Yes, I do; for a great many go into the business with the idea that, the more money they can get invested, the more will be their returns. But it is generally the other way."

"What do you think of the idea of putting a swarm of bees worth $3.00 into a hive worth $4.00?"

"I think it is like driving a $100 harness on a $50 mule."

CARNIOLANS OR ITALIANS.

"Which kind of bees do you prefer, Carniolans or Italians?"

"I tried one Carniolan queen; and if the progeny of all Carniolans are the like of this, I have had enough of them."

These were some of the topics talked over. When looking at the clock it said train time, so my very pleasant visit had to come to an end. With good wishes I left Gansevoort, and arrived home in four or five hours, feeling well paid for my visit. Brodie G. Higley.

Hartford, N. Y., April 27.

THE NEW BENTON CAGE.

WHAT AN EXTENSIVE QUEEN-BREEDER THINKS OF IT.

Friend Ernest:—I think the new small Benton cage is the best that I have ever seen, and the item of postage is a considerable one when a person has to send off many. I think there is plenty of room in warm weather for eight bees and the queen. In colder weather it will hold about sixteen bees, and be a little crowded, which is better in cold weather, though when we have to send off bees in as cold weather as I had to send some this past spring, I feel as if I should like a cage that would almost hold a little nucleus; but I believe this will do to send queens in safely in most parts of the United States, at any time of year. It being shallower than most cages, and having sufficient length, the bees and queen seem to be comfortable and easy; while if they had more room, by giving more depth they become more excitable every time they are moved or handled on their journey.

I concluded to try an experiment as soon as I received the first lot from you. I had a small dark queen which I had rejected, so far as sending her out to any one, but I concluded to keep her in one of my hives for the purpose of building up. This queen I placed in one of the improved cages, with exactly one dozen bees, on the 1st day of July. To-day, the 18th, there is not a dead bee in the cage, and the queen is lively, and they have, I think, about three days' rations, which I hope will be enough to land her safely at the Home of the Honey-bees. This queen and bees were placed, when first caged, in a bureau drawer, and have been there ever since. They have been in fine condition. Of course, I don't expect you to keep the queen, as I don't consider her of any value, but she will answer for the experiment; and if you find that she arrives all o. k., and you deem it worthy of trial, you may renew the candy and mail her back, and I will report what condition she arrives in. Would it not be a good idea for us to take a queen, as in this case, and mail her back and forth, and report the condition she arrives in each time, and see how long they will last in the improved cage? If you deem it worth a trial we can start on this one after having been caged 18 days. J. D. Fooshe.

Coronaca, S. C., July 18.

[There is no doubt, friend F., but this cage is a big step in advance. Costellow's penny-postage feature, and our method of making it a successful introducing-cage, are two of its distinctive features. The cage containing queen and bees arrived in excellent condition. We put in fresh candy, and return them to you to-day (20th), and no doubt they will arrive to you in good order, even after being confined over three weeks. Since we adopted the new cage, by mistake a queen was sent to the wrong man; but he very indignantly returned it, saying he had not ordered any queen. It so happened that the queen had originally come from you, and had been lying on the table for some five or six days. The total length of time that it had been out was something like three weeks, and she was still in good order, and was successfully introduced into our apiary. How many more weeks' journey she would have stood, we do not know. As she was a good queen, we did not like to put her to any further test. Of the hundreds of queens we have sent out in these new cages, the number that we have had to replace has been remarkably small—I think it is about one in a hundred; and even this hundredth one might be eliminated if we could *always* make the candy just right. Candy that will do for cooler weather is not as good for real hot weather; and sometimes sudden changes of weather so affect the candy as to cause the one in a hundred to die. Mr. Fooshe uses, with excellent results, granulated sugar and the best quality of extracted honey kneaded into a stiff dough, the honey having been first warmed until it is of about the consistency of milk. We also warm the honey, but use instead pulverized sugar. We are not sure it is any better, although we have excellent results. The Good candy, or, more properly, the Scholtz, as described in the earlier editions of "Langstroth on the Honey-bee," is one of the elements in the successful mailing of queens.] E. R.

THE KEENEY WIRING.

C. A. HATCH EXPLAINS; HOW TO WIRE FOUNDATION HORIZONTALLY AND NOT HAVE IT BULGE.

Friend Root:—I want to say a word about the Keeney method of wiring frames, or, rather, say what I should have said last year at the time I made my experiments in wiring, that were reported in Gleanings. It was rather cool weather, and the report was made as the facts then stood; but I found, later on in the season, when the weather got warmer, that I had the same trouble that Ernest speaks of, and ask pardon of the brethren for not reporting the subsequent failure as well as the success. However, there is one point that is not explained; i. e., how the foundation is kept from lopping over between the top wire and the top-bar; there is where I had trouble with that method. May be Ernest has explained all this; but if so, I have forgotten. The only way we could obviate this trouble was by rubbing it down to the top-bar, which made so much bother it was all given up in disgust. The foundation we used was part of our own make and part of Dadant's, and it ran about six sheets, L. size, to the pound.

HOFFMAN FRAMES.

I did not expect to come out anywhere but second best in my argument on the Hoffman frame; for who could expect to prevail against two such able advocates as the junior editor and Dr. Miller? In fact, "thou almost persuadest me." But to Dr. Miller's ideas about

SPRING DWINDLING,

I must cry out, "Shan't either!" In the first place, I am sure that brood-rearing in the cellar has nothing to do with it. I would have indorsed every word Dr. Miller had said about it previous to this spring; but my experience this year has knocked all my preconceived notions endwise. First, I never set bees out with as little brood as this year, none having more than two patches the size of one's hand, and some almost none; and yet I never had as bad a case of spring dwindling, and nothing seemed to check it—chaff packing, warmth, feeding, nor even new pollen. There was no stop, apparently, until all the old bees were gone. Colonies that were apparently in good condition when set out, all went "where the woodbine twineth." I thought, when my bees were set out, that I had a pretty fair lot; but there was no let-up until fully 50 per cent were dead. What was the cause? Don't know. I know they had more or less honey-dew, and perhaps it is as well to lay it to that as to any thing else. But the worst cases were fed on Good candy in the cellar. Would leaving in the cellar until dwindling time was over have saved them? I do not think it would have been over until all had gone just the same. The weather was not bad; on the contrary, unusually favorable I thought. This experience has put me all at sea in regard to spring dwindling, and I am sure of only what I don't know.

Ithaca, Wis., July 9. C. A. Hatch.

[Your experiment, friend H., being made in cool weather, would make quite a difference; and I do not wonder that you decided on wiring by the plan as you originally gave it in Gleanings, for I too encountered the same difficulty in fastening the foundation to the top-bar, and decided as you did. This year, a mere accident showed me conclusively that the other side up was much better. The top of the foundation we fastened on to the comb-guide, and we had no trouble. But perhaps I should say that a common knife will not answer. We use in our binding department what we call "bones" for folding papers. They are something the shape of a strong heavy paper-knife, about six inches long, no handle, and blunt at both the ends. They are nicely polished, and the edges and ends are beveled, the ends also being slightly rounded instead of square. I tried rubbing foundation on to the comb-guide with a knife, and gave it up in disgust. Then it occurred to me that one of these bones that they use in the paper-room would be just the thing. I at first did not succeed; but finally I got the knack of it by dipping the bone frequently in water, so that I could show the girls how to do it. It is something that I can not explain; but any one who tries such an implement will discover the *modus operandi* after a little practice. A piece of hard wood shaped after the bone might answer.

I might say, further, that we are now getting some beautiful combs. They are equal in every way to those made on the perpendicular plan.

It has been a great puzzle to me for a year or so back how the Dadants, George E. Hilton, and others could use plain horizontal wires, without having the foundation bulge. Somebody, perhaps Geo. E. Hilton a year ago, said the secret was in *not* drawing the wires *taut*. Something interrupted, and I did not have an opportunity to try the experiment; but I now discover that we can wire frames horizontally as well as perpendicularly, providing the horizontal wires are left not drawn taut. When the foundation sags in drawing out, the wires sag with it a trifle, so there is no more bulging of the foundation than if simply put on the comb-guides without wire. Do you see? Well, this means that we can use plain *horizontal* wiring, if it is more convenient than the Keeney, *providing* we use thick top-bars, or bars that will not sag, and foundation cut a trifle shorter than the inside depth of the frame. The Keeney helps to sustain the top-bar, and I think it is a little stronger than the horizontal plan, but it's more work.

In regard to the Hoffman frame, I desire only that its merits shall be seen and appreciated as the users and admirers of this frame do. For be it far from me to come out ahead in discussion simply for the sake of it. I did feel, and think so yet, that if you were to try a few Hoffman frames, and *accustom* yourself to them, you would be so convinced of their merits from practical use that you would adopt them exclusively, in preference to any other style of *new* frames that you put into the apiary. I am not sure that it would pay any bee-keeper to transfer his combs from loose frames to the Hoffman; but if he is going to buy a lot of new frames, to be used in an out-apiary, the Hoffman is the style that he should adopt, providing he has tested a few to know that his locality will admit of their use. There, there! I have encountered that old bugbear "locality" again. However, I suspect the time will come when we shall find that it is not so very great a factor after all, in the use or disuse of fixed frames. I have studied this propolis question in a good many States; and I am loth to believe it is so essentially different as to make fixed frames impracticable.] E. R.

A POOR HONEY SEASON IN KENTUCKY.

HOW BEES THAT WOULDN'T STAY HIVED WERE MADE TO STAY AT HOME; GARDENING, ETC.

This has been a poor season for honey here. The long drouth of two months cut off our usual white-clover supply; and though some has bloomed since the recent rains, there seems to be no sweetness in it. Many of our largest bee-keepers report no swarms at all. However, I've had three swarms from four old stands; and while it has been our (my wife and I are partners) first year with bees, we have secured an ample supply of honey for our own use, and some really amusing as well as useful experience. Coming home from my office one afternoon I found my wife with the A B C of Bee Culture in one hand, and a box with a queen in it in the other.

"I'm trying to find what will make those bees stay in the hive. I have put them in twice, and they are out again. Hurry, or they will be back before you are ready."

The queen had her wing clipped. I had heard something about getting a frame from near the center of another hive, containing "unsealed larvæ," etc., and so I rushed and procured one, and had it in the new hive by the time the swarm came back; and as soon as they were going in rapidly, we released the queen and they remained contentedly afterward.

There is one hive of vicious hybrids, and, like Dr. Miller, I wish the queen could be "mashed up very fine;" but some other fellow will have to do the mashing.

While I enjoy the bee-department of GLEANINGS very much, the "crop" of garden notes is always read first. My first attempt at growing Spanish onions for seed this season, I call a success already. They are just cracking the ground open in their haste to get large. Some are as large as one's fist now, and the tops look green enough to grow all summer. As soon as they were out of my hotbed, celery seed was sown, and a good supply of extra-fine plants, which were put out the 8th inst., is the result. My Hubbard squash were entirely eaten up by the little striped bug, while the common, or field squash, was not hurt. If I get nothing more of benefit from Terry's strawberry-book I shall think myself well repaid from the instructions obtained as to setting plants alone. Six hundred were put out by firming the ground around each one, and throwing some loose soil over this, and not three plants were lost. Some of my neighbors lost all, some half, just in proportion as they were carefully put out. Give us more "Terry sermons." WALTER STUART.

Winchester, Ky., July 13.

AN APPROPRIATION OF $500.

WHAT THE STATE OF ILLINOIS HAS DONE FOR ITS BEE KEEPERS.

Hurrah for the great State of Illinois! Hurrah for the Bee-keepers' Association of the State of Illinois! Did you hear that the last General Assembly of Illinois has passed the first law ever made in Illinois, recognizing the existence of the little bee? Why! they have given us five hundred dollars per annum, to be used in promoting the interests of our great, glorious, and honorable industry in Illinois! Now let any misguided person try to have the courts declare bee-keeping a nuisance, and we will rise up in our indignation and say, "Sir, would the State of Illinois appropriate five hundred dollars for the maintenance of a nuisance?" and our enemies would retire, covered with confusion.

There lies in front of me a book entitled "Laws of Illinois, passed by the 37th General Assembly in session at Springfield, January 7, 1891—June 12, 1891." Turning to page 7 I read as follows:

An act making an appropriation in aid of the Illinois Bee-keepers' Association.

Whereas, The large and growing industry of bee-keeping in the State of Illinois is worthy of proper encouragement by the General Assembly; and

Whereas, The Illinois Bee-keepers' Association, an organization composed of the leading apiarists of the State, is engaged in promoting this industry, and desires an appropriation to assist in this work;

Therefore—

Section I. Be it enacted by the people of the State of Illinois, represented in the General Assembly, that there be and hereby is appropriated for the use of the Illinois State Bee-keepers' Association the sum of $500 per annum; provided, however, that no portion thereof shall be paid for, or on account of any salary, or emoluments of any officer of said association; and that said sum be expended by said Illinois State Bee-keepers' Association in the publication of such reports and information pertaining to this industry as will tend to promote the growth and develop the apiarian interest for the years 1891 and 1892.

Section II. That, on order of the President, countersigned by the Secretary of the Illinois State Bee-keepers' Association, and approved by the Governor, the State Auditor shall draw his warrant annually in favor of the Treasurer of the Illinois Bee-keepers' Association for the sums herein appropriated.

Approved June 16, 1891.

Brother Root, this is one of the grandest things that has happened to us bee-men for many a year. I think I see Dr. Miller's eyes snap with pleasure at the good news. Illinois is now and will be the cynosure of eyes all over the world, and this good move on her part will be the signal for more decided recognition of our industry, and for similar appropriations in other States.

Let this be the signal for bee-keepers in Ohio to get this matter thoroughly digested, and in form for presentation to the next General Assembly of Ohio.

"Forward" be our watchword,
Hearts and voices joined.

Chicago, July 20. HERMAN F. MOORE.

[This is indeed important; and, as a precedent, it will be invaluable. Now, if there is any organization that needs such an appropriation, it is the North American Bee-keepers' Association. Although the stamping of medals, etc., is now under way, to be awarded to affiliated societies, in accordance with the constitution, we need other benefits that we can award to members that we can not now give from the treasury. The Ontario Bee-keepers' Association gave to each of its members one year a copy of Langstroth's Revised; the last year, I believe they gave a copy of Cowan's scientific work, The Honey-Bee. The Ontario association has had an appropiation, so that it is able to give its members substantial benefits. This is just what we need for the national association. Bee-keepers are not after presents; but benefits conferred in one way and another would help very much to enlarge the membership of our national association. This will be a proper and a timely subject to discuss.] E. R.

* * *

CENTRAL ARIZONA AS A HONEY COUNTRY.

A TRIP OF 40 MILES IN THE WILDS OF THE COUNTRY.

As I sat on a stone by the roadside and took my first square look at the Verde Valley, the thoughts uppermost in my mind were, that, if that were a honey country, I had at last found something more marvelous than the manufacture of nice jelly out of old boot-heels. It was the afternoon of Sept. 21, 1888, and I had been tramping most of the time for the previous 24 hours. I had walked until 9 o'clock of the previous evening, and then rolled myself up in my one blanket, stretched myself out on the bare dry ground, and slept, though I had no idea as to where I was nor how far I was from human habitation. I only knew that I was on the road from Prescott to Fort Verde, and to what I hoped and expected would be a good honey country. I slept soundly till midnight, when I awoke with the cold; for the nights in the mountains of Central Arizona are rather cool for sleeping out in only one blanket. I "turned out" and walked a few miles until I got warmed up again, then stopped and caught about an hour of sleep, and concluded I had slept enough to carry me the remainder of the distance. Even though I was a "tender-foot," I rather enjoyed the novelty of the situation. There was a romance about the awful stillness of the wilderness, broken occasionally by the startling yell of coyotes, which I suppose just suited young blood, for I did actually enjoy it.

As I had walked through that wilderness during that long day, seeing nothing growing on the barren rocky ground which I thought could possibly yield honey (though I afterward found I was mistaken) I had consoled myself with the thought that I should see a different-looking country when I came in sight of the valley, for "verde" certainly means green. But I must confess that I felt green—or, rather, blue—as I sat there on that rock, weary and footsore from a tramp of 40 miles through a wilderness where neighbors and water were from eight to ten miles apart. The river, which lay about 1000 feet below me, and about three miles away, could be seen occasionally through openings in the narrow belt of cottonwoods growing along its banks. The sight of these green trees and the water did look good; but still my eyes ached for the sight of some green grass; for from that point I could not see the alfalfa ranches, though I afterward climbed to a point of about the same elevation, and looked down upon another part of the valley. I think I never saw a more beautiful sight than that presented by the bright green fields of alfalfa, and the cottonwoods, with the river shining through them in places, as contrasted with the barren hills and mountains which hemmed in the little valley.

The valley is about thirty miles long, and from one to five wide. From the point of which I speak I had a fine view of the surrounding country. Away to the northward, about 80 miles, could be seen the San Francisco Peaks, the highest points in the Territory, of which one or two are extinct volcano-craters. These peaks are often snow-capped for nine months in the year. Further to the west of these can be seen Sitgreave's Peak and Mt. Bill Williams. In the east rise the Mongollon range into the timber line, and there, within 100 miles of Phœnix, are hundreds of square miles of the finest pine timber I ever saw, rotting and going to waste for the lack of proper shipping facilities, while the bee-men of the Galt River Valley, I suppose, are shipping their lumber for hives from Michigan via Bro. Root's factory.

As the remainder of my journey was not eventful enough to warrant my occupying any more space, I will begin upon my subject; that is, the honey resources of the country, which, I will say to begin with, proved much better than my first impression led me to expect; for, after becoming better acquainted with the peculiarities of the country, I learned to like it, and shall count my two years' sojourn there as two pleasant and profitable years of my life.

I went there to take charge of an apiary owned by Mr. F. E. Jordan, an enterprising man from New England, who has made Arizona his home for the past fourteen years. Although he was but a novice in apiculture, he yet saw an opportunity for making an apiary a source of profit to him if run in connection with his other business (fruit culture, milling, and stock raising). Wishing to adopt the Heddon hive and system of management, he wrote to Mr. H. to send him a man who had been in his employ, and one who understood the system of management which is such a necessary accompaniment to this hive. Having a desire to see something of the West before locating permanently in the business. I was ready to take this opportunity when it was tendered me.

The principal honey-plants of the country are the famous alfalfa, clover, and mesquite, which correspond to the white clover and basswood of the East. Perhaps I can give the best idea of the honey resources by describing the honey-flow as it came last year. Early in February, pollen began to come from the alder which grows in the river bottom. Unlike an Eastern climate, the days of February are generally uniformly pleasant, and warm enough for bees to fly well, though the nights are cold and frosty. There is seldom a week of weather during the entire year severe enough to confine bees to their hives; but still there is often a range of 50° between noon and midnight temperature. Following the alder comes the "filleree," or alfilaria, a California plant which is fast taking possession of this country. This plant, like buckwheat, yields honey only a few hours in the morning, and it is a beautiful sight to see the hills and *mesas* (tablelands) take on a pink tinge for a few hours on those bright warm mornings. In places the little pink flowers cover hundreds of acres like a bright pink carpet, while a delicate pink tinge can be noticed clear to the top of the surrounding mountain, though the flowers are not as abundant on the hills as in the valley. As the flowers begin to close about 10 o'clock, the color fades; and by noon all is green or gray again.

Sometimes at this season of year there are patches of bright yellow poppies and other wild flowers, and of blue wild flox, upon the carpet of green and pink; and the fruit bloom which comes at this time of year gives still another color, making the valley, when viewed from the surrounding hills, a most beautiful sight, and in striking contrast with my first view of it. The honey which comes at this time of year is dark, and of little value as surplus; but coming as it does where there is but a small working force of honey-gatherers, and a large quantity of brood to care for, it is used about as fast as gathered. By the first of April, strong colonies begin to show signs of swarming; and by the 15th of this month swarming is in full blast.

In February, mesquite and cat's-claw begin to bloom, and then begins our white-honey harvest; and I think some of the honey which came from these shrubs in the season of 1889 was by far the nicest honey I have ever tasted. It was as clear as sugar syrup, very thick, and of a delicate flavor. The mesquite shrub (pronounced *mes-keet*) has a very wide range as regards its time of blooming, for I have seen bees working on it constantly from April till August.

Early in May the alfalfa begins to bloom; but there it yields but little until the plant is in full bloom, and about ready to cut. I am not prepared to gush upon the merits of this as a honey-plant; for, from my experience, it is not a great yielder, and the honey is almost amber in color. The flavor is not as fine as I had been led to expect, by reports from other localities.

Mr. Jordan's apiary was located within bee-range of 1000 acres of alfalfa. Perhaps some one may say that it was not hot enough; but when the mercury gets up to 114° in the shade, it's hot enough for me—plenty. I have no doubt but that it will yield large quantities of honey under favorable circumstances; but just what are favorable conditions I don't think is known yet. I am inclined to think that locality and circumstances have a great effect upon the quality of honey secreted by this plant.

In June we get some honey from a shrub called *palo verde* (green pole), which grows on the surrounding hills. After this there is usually but little honey gathered from any source except the different crops of alfalfa; but last season was an exception to the rule, for the bounteous summer rains, which began about July 1st, brought us a rank growth of a peculiar weed of the mint family, the name of which I have been unable to learn. This yielded quite a quantity of honey, which in quality was dark and strong, but it served to keep the bees out of mischief.

During the late summer and fall months the bees gathered a little honey from a plant similar to the Mollie O. Large honey-plant, which grows in the sandy river-bottom.

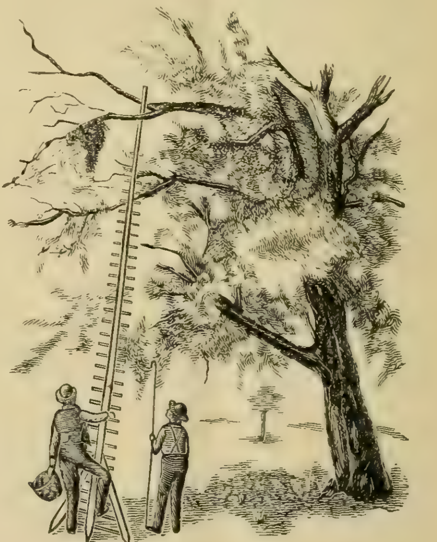
Though there was only about two weeks during the entire season, from February until October, during which the bees were idle enough to rob, yet our average yield was only 106 lbs. per colony, over two-thirds of which was extracted; so you can see that the honey came very slowly. It came too slowly for the production of a nice article of comb honey, a fact which I learned by dear experience.

Brecksville, O., July 18. L. W. Bell.

SWARMING-LADDER.

STRIMPL'S DEVICE.

Swarms usually alight low, so that the ordinary swarming implements previously described will reach them from the ground. But there are times when they will settle on pretty high limbs. It is then that a ladder is called into requisition. If it will not reach the swarm it will at least land the climber among the upper limbs, so that he can step from one limb to the other, and finally reach the bees. But it is difficult to stand an ordinary ladder against a limb of a tree so that it will be secure for climbing, on account of the unevenness of the limbs. A Bohemian by the name of R. Strimpl, of Schetschan, Bohemia, sent us a drawing of a ladder that can be lodged—that is, the upper part of it—securely on some limb above. The following engraving illustrates its principle of application.



STRIMPL'S SWARMING-LADDER.

The two side arms, or forks, prevent the ladder from revolving; and it will be observed that the ladder terminates in a single pole. which can be very easily lodged in the fork of a limb where a two-pronged ladder would not. The three prongs below the ladder are sharpened at the ends, and securely pushed into the ground; and the perfect lodgment of the other end in the crotch of the limb makes it a safe means of ascent. Aside from this, the ladder will be lighter and less top-heavy, and this latter is quite a desirable feature. ERNEST.

CONTRACTION, AGAIN.

C. W. DAYTON'S ARGUMENT FOR IT; LARGE VS. SMALL HIVES.

Friend Root:—On page 167 is an article on contraction, on which you and I differed, and from which you appeal to Messrs. Dadant and France to tell why contraction is not advantageous. Mr. Dadant replied on page 354. To show, from a contraction standpoint, how the opponents of contraction manipulate that subject, is my excuse for again encumbering your columns with an article on the above subject.

First, Mr. Dadant says, "A queen from July to August can lay very little in a small hive."

There is nothing strange about this assertion but the dates. By reading my article it will be seen that the dates I gave were to contract on "June 15 to 20," and continue during the honey harvest, which lasts "scarcely 20 days." That the date should be jogged along 40 or 60 days is deserving of a row of Mr. Heddon's "guide-boards" (lately described in the *American Bee Journal*, so thickly posted around the assertion and its promulgator that the inexperienced can not see through them.

Mr. D. should understand that a contractible hive is an expansive one also; and that the last time around, to extract or remove sections is the season when this expansion is applied; and this expansion continues onward, as much as possible, for 340 to 350 days, or until the approach of another honey harvest.

Mr. D. also says, on page 354, that his "hives are larger than a twelve-frame Langstroth; and when white clover begins to bloom, nearly every one of them is full of brood, and of bees ready to bring honey into the upper story."

This statement carries with it a strong inference which thousands of bee-keepers have demonstrated to be a fact; which is, that "ready to bring honey into the upper story" happens only after those capacious brood-combs are packed with brood and honey; always later than the beginning of the harvest.

Mr. D. estimates the number of bees in the brood state as 75,000 to 80,000. Now, I ask what Grant could have done before Richmond if 75,000 of his soldiers had been in their cradles, and had to be rocked by the remaining 25,000. But Grant said he would fight all summer there; where, on the contrary, the bees have "scarcely 20 days." It should be remembered that brood does not gather honey, neither are honey-gathering bees propagated in less time than 30 days.

On page 355 it says, "The new doctrine which advises bee-keepers to contract" is "laborious." Let us see. The principle of "the new doctrine" consists of the insertion of two sheets of perforated zinc in a twelve-frame hive, so as to confine the queen in an apartment containing four or six brood-combs. This is done at the opening of the honey-harvest. These six combs the queen is allowed to fill solid with brood, while the six combs remaining on the outside will gradually have all the brood hatched out, and be filled solid with honey—probably 35 pounds. These six combs may be set away for winter, and wide frames filled with sections put in their places; whereas, if the queen were allowed to travel through the whole hive it would be impossible to remove a comb without taking brood also; because, as Mr. Doolittle says, "there is much brood and honey throughout the hive, but not much of either in any single comb." But suppose the extractor is used, then it is less labor to extract 35 pounds of honey from six combs than twelve, and then it is a tedious job to turn the extractor when extracting the twelve combs so slowly as to avoid throwing out the young larvæ. Many consumers do not know that the black putrid worms they skim from the barrels were once young bees. It is next to impossible to strain thick honey, and that is the kind most apt to contain young bees. Mr. Dadant's wholesale management may not involve these points so closely; but nine-tenths of the bee-keepers manage exactly as described. While Mr. D. amassed his whole article against the "new doctrine" as "stopping the laying of the queen," it was nearly a total miss shot, as that is not the most valued function. This valued one is the consolidation of honey and brood in the receptacles provided to receive them. This saves labor, saves combs, saves hives, saves time and vexation.

There is one advantage which the large hives possess over the old "doctrine" of contraction, and which advantage is admissible, and inscribed entirely within the range of the "new doctrine" of contraction.

By the *old* "doctrine" of contraction by using "dummies," the bees were to be forced or driven, at the beginning of the harvest, through a honey-board into a dry uninviting super or chamber, where, on the other hand, Mr. Dadant's supers are not an upper story, and are full of combs more enticing than "baits." But then, instead of the bees coming up into them immediately they are coaxed along from comb to comb, close by the side of the brood in the lower hive until they have stored one-third to one-half a crop, and the duration of the harvest half gone.

Now, it is a rule that, when the honey-harvest has been on hand ten days, many colonies, though filled with brood and bees at first, are twice as large as then; and the hive, even if of large size, literally boiling over with bees.

At this time of the harvest no one complains that bees are not in the supers; but the complaint is, that they do not begin in the supers until the harvest has partly gone by. By *old* "doctrine," the sections were drawn and filled, then the winter stores looked after, when, with large hives, it is just the opposite.

Whatever the hive may be, the successful operation is to get the receptacles for honey near to the brood; and this "new doctrine," which Mr. D. may have mistaken for the *old*, admits the sections and extracting-combs into the lower story so close by the brood that thirty-five pounds of large-hive winter stores may be obtained in marketable shape, besides saving the propagation of a host of young bees which are of no use except to help crowd the old working bees from the brood-chamber into the super.

Without contraction many colonies crowd the honey into the brood-nest so compactly that the queen can not find cells in which to propagate a sufficient colony for winter, while a few queens will keep so much brood that a hive full of combs does not contain enough honey for winter. This difference is very much owing to the manner of the queen's laying eggs. Some queens appear to prepare their colony for the harvest, while others use the harvest for the enlargement of their colony. Contraction is a regulator. One writer, speaking of contraction and the queen, says: "I am willing for her to run her little realm just as her motherly instincts prompt her." By following out the same line of reasoning he could turn over the affairs of the barnyard to any presuming old biddy who would sit on a nest of 40 eggs, hatch out three chicks late in the fall, and lose them all by the rigors of approaching winter. That the queen and bees should not be corrected in their affairs as well as other domestic animals, is simply superstition. C. W. Dayton.

Clinton, Wis., May 15.

BALDENSPERGER'S APIARY IN JAFFA.

THE KIND OF HELP HE HAS TO PUT UP WITH; MOHAMMEDANS AND THEIR PRAYERS.

BALDENSPERGER'S APIARY, WITH A VIEW OF JAFFA, IN SYRIA, IN THE BACKGROUND.

Mr. Root:—Jaffa, the landing-place of Palestine, is shown in the picture. It is supposed to be the oldest, or, at least, one of the oldest, cities in the world, founded by Japhet, according to some. In the Scriptures we know the prophet Jonah embarked here for Tarshish, and Japho was in the tribe of Dan. It has been built and destroyed over and over, as have almost all cities in Palestine, the last notable invasion having been by Napoleon I., then General Bonaparte. It changed hands again in 1833 and 1840 from the Sultan of Turkey to the Viceroy of Egypt, and vice versa, and seems to have been flourishing since then. Although oranges have been planted here, yet the orange-groves as seen lying between the apiary and the town for nearly a mile have been planted since, and are greatly extending all the while. The building on the left hilltop is the British Hospital; on the main hill is the French Hospital, and a church (not shown) belongs to the Franciscan friars. Away down is the minaret on which the Mohammedan "muaddin," or "caller," calls out for prayer five times in twenty-four hours; i. e., at daybreak, midday, afternoon, sunset, and nighttime. All devout people are then expected to kneel down and pray, no matter where they may happen to be—on the street, in their houses, fields, shops; a fervent prayer is expected to be in white, and have no stains on his clothes—a fact very difficult to observe for the busy times. The man on the right of the apiary in white, and armed from head to foot, is supposed to listen attentively to the directions he is receiving from your humble servant at the left of the apiary. I had some trouble to make him stand still. As he is a strict follower of Mohammed, he has visited Mecca, and is now styled "Pilgrim," or Haj Mohammed, his own name. The Koran forbids the "making of the likeness of any thing living," taking it stricter than the second commandment enjoined, whence they have copied it, undoubtedly. I told him I would be responsible for the sinfulness of the thing, though he gave it unwillingly. He guards the bees by night now. When extracting time is very urgent it is difficult to go ahead with him, as he always has to perform his prayers. Now, this is not simply to kneel down and pray, but he has to wash himself all over if he touched any unclean thing. The prayer itself doesn't take more than five or ten minutes; but the clothes he has on for work are all to be changed. Should he omit one of these prayers, he can recall it next day about the same hour, along with the regular one; and should he have omitted ten prayers, he has to pray ten prayers. Not one is forgotten; and if he die in the meantime, there is supposed to be a fiery iron plate at the "gate of hell" where he is to perform them. Of course, he is burned or roasted every time, and gets restored again when he has said one prayer. When all his prayer-debts are paid he is allowed to enter heaven. His prayers are known by heart. He has a form of prayer to repeat two or four times at every prayer, consisting of the first of the Koran, and some other similar repetitions, about God the only one, and Mohammed his prophet, to be kept from the devil, etc. Such chaps are very difficult to be had just the moment you want them, for they are either preparing to pray or praying, and can not be disturbed for any thing in the world.

The hives are placed about four paces apart on each side, and covered with tiles individually in winter time; in summer there are no rains, consequently they are taken away. Such a hive weighs from 60 to 70 lbs. before the honey-flow begins; and this is, taking eight hives per camel, pretty near what such an animal can carry. The value of a camel ranges from 40 to 60 dollars.

A railway, the first one in Palestine, is now building, and will likely diminish the earnings from camels; consequently, also, the value of the animal itself. The first Palestine railway, from Jaffa to Jerusalem, is now in construction. It was begun on the 31st of March, 1890. Possibly in future bees will be transported by rail instead of camelback, as it has been done hitherto, with great risk to the camel's life.

ANOTHER VIEW OF BALDENSPERGER'S APIARY, JAFFA, SYRIA.

I send another photo, taken by an amateur in my apiary. It was taken in spring. The hives in front are nuclei; the hinder ones, with the supers on, full colonies; the ground whereon the hives are standing is covered with weeds, and the weeds with snails. In the background are the orange-groves of Jaffa. Jaffa is on three hills, in the horizon, the main town being between and behind the two figures to the left, looking at the photo. The first man on the left is my brother Henry, with a comb in his hands on the hive before him, a pair of gloves, and next to him an Arab holding a "Palestine improved" smoker. The bellows is to be driven with both hands, as no spring opens it. Next is your humble servant, with Bingham smoker in one hand, and my little daughter, aged five, with bee-veil, beside me, and behind the earthenware indigenous bee-hives, out of which the bees and comb have been taken and transferred into movable-frame hives. My man is the last and tallest of all, in the Arab clothing, and having an Arab bee-veil on. Many hives have been already transported to the thyme-fields. This is why the rows are incomplete. The extracting-house is away in front.

This will give you only a faint idea of Jaffa and the vast orange-groves. In the season of 1889 and '90 there were exported to England alone, thirteen million oranges. I do not know exactly how many to other countries.

PH. J. BALDENSBERGER.

Jaffa, Syria, May 27.

[Friend B., it is to be hoped that our missionaries may soon make progress in Palestine, and let the real spirit of God's holy word supplant the superstitious traditions you tell us about. I am afraid I should lose patience, and tell the fellow you speak of that I preferred somebody for a helper who did less praying, and what he did do, of a better kind. I do not know how profitable you make bee-keeping; but we Yankees would be continually inquiring, "Does it pay to fuss so much and run such risks of loading bees on camels, etc.?" The views of the orange-trees at the foot of hills remind me so vividly of California that I feel a great longing to see an orange-grove again. Whenever I taste our Messina, Sorrento, and Palermo oranges, I think of the immense quantities our neighbors across the great ocean produce in order to send them so far away, and still they are sold at from only ten to twenty cents a dozen. During the past year we have frequently found oranges by the dozen cheaper than apples by the dozen.]

BEES AND STRAWBERRIES.

A REPORT FROM VIRGINIA.

I carried 18 hives through the winter on summer stands, without any loss. By natural swarming I now have 49 doing well. Some of my earliest swarms, about the 8th and 10th of May, are now full, the sections being ready to come off. I keep Italians from six or eight different breeders. All are pretty and good; but Doolittle's select tested queens have given me the greatest satisfaction.

Strawberry season is over. I have gathered a good crop. My largest berry was the Mammoth, bought a few years since by a friend from a nurseryman in New Jersey. The berries were the largest I have ever seen, and I have been raising berries for market for nearly 20 years; and during that time I have tested more kinds than I could name. About one-fourth of the fruit was flat, or coxcombed. The largest specimens were shaped more like a cantaloupe than any thing else I can think of. A few ladies offered me 5 cents for one berry. Of course, it was given them without money, as I was selling them for 15 cents per quart. If I live I shall await with a great deal of anxiety the equal contest between them and the Saunders, next season, so highly recommended by you and friend Crawford. The most prolific variety was the Old Kentucky, which I have cultivated for a dozen or more years. It has always been in the lead as to productiveness. Last year I sold the Kentucky for 12½ cents by the crate; this year, 8 and 9 cents by the crate, when others, before they came in, were selling for 6 cents per crate. I always get from 2 to 4 cents more for the Kentucky than the medium crop brings. I had my first strawberry feast on Sunday, May 10; my last yesterday, the 19th, being 41 days. I was selling about 30 days. My earliest berry I bought for Sharpless; but it is something else, being both more acid and a darker red than the Wilson; about as dark as the Cramer. I have been taking runners off from them to-day, and find a good many berries here and there now, notwithstanding they had ripe fruit 41 days ago. By the way, I bought some Ohio from Mr. G. L. Miller, of your State; he claims that it is a seedling of the Kentucky, and considerably later and more prolific. If this should prove true with me I intend to give him a nice suit of clothes, for introducing such a bonanza. R. Jeff. Jones.

Design, Va., June 20.

ARIZONA AS A HOME FOR BEE-KEEPERS.

AN INTERESTING LETTER FROM A. J. KING IN REGARD TO THE GREAT ALFALFA FIELDS IN ARIZONA.

When writing the articles on Cuba for Gleanings a few years ago I little dreamed that there was a country anywhere in Uncle Sam's dominions rivaling if not excelling that famous island as a paradise for the bee-keeper; yet such is the fact, and Salt River Valley in Maricopa County, Arizona, is that country. Fully equal to Cuba in honey resources, it is not beset with the many disadvantages of that beautiful island, such as the lack of good society, schools, churches, the universal prevalence of a language foreign to our own; the unjust exactions of the Spanish government, and, lastly, the duties—both export and import—on honey, amounting to over two cents per pound. A country ever so well adapted to the keeping of bees, yet wanting in these and other important respects, we could not conscientiously recommend as a desirable place for the many home-seekers of the East, so we will briefly describe this country before speaking of its adaptability to honey production.

By reference to a map it will be seen that Maricopa County is situated somewhat south of the center of the Territory, being a little larger than the combined areas of Massachusetts and Delaware. Salt River Valley occupies the center of the county, and extends east and west. It is at an elevation of 1200 feet above the sea level, and walled in by mountains. The valley is 50 miles in length by about fifteen in width; and the Salt River, running near its center, travels its entire length from east to west, the valley gradually sloping in the same direction. It also slopes from the base of the mountains on either side down to the river, the inclination being about ten feet to the mile. Along the bases of these mountain chains, canals extend nearly the entire length of the valley, receiving their water from the river far up in the mountains. The water is soft, clear, and fresh, being the product of melted snow. From the canals, laterals extend at convenient distances toward the river; and from these, ditches are dug, so that the entire country is well irrigated. The soil is deep and extremely fertile, producing not only the crops raised in the East, but the semi-tropical as well. The farmer having rain (irrigating water) just when needed, a failure in crops is unknown.

Here is the home of most of the semi-tropical fruits, figs yielding two and three crops each season, and grapes two crops. Oranges, lemons, dates, olives, pomegranates, almonds, walnuts, peanuts, etc., all grow in profusion. Better peaches, apricots, prunes, and pears I never saw or tasted than were produced here the past season. Apples do fairly well in the more elevated places near the mountains, but not so well as in more northern latitudes. Stock of all kinds thrives prodigiously on the thousands of acres of alfalfa (Chilean clover), forming a rich green carpet the year round. This clover is cut from four to six times during the season, and yields about two tons per acre at each cutting.

This valley has been well denominated "a beautiful oasis in the dreary desert that stretches from the cornfields of Kansas to the orange-groves of Southern California." Well do I remember the feelings of joy which came over me on leaving Maricopa, a station on the S. P. R. R., and running 30 miles north over the desert; of the sudden appearance, on nearing Tempe, of the green fields stretching away as far as the eye could reach, and covered with groups of fat horses and cattle. The mental picture I had formed of the country from reading the glowing accounts of others, I found, were living realities; and now after more than a year's residence I find the picture is not dimmed, but heightened and brightened in nearly every particular.

The climate is something wonderful to experience, having, on an average, about 300 cloudless days in the year. We have neither the cyclones and blizzards affecting the countries further east, nor the fogs and dampness of the Pacific coast. Malaria, rheumatism, and all diseases of the throat and lungs, find no lodgment here; and persons so affected—if not too far gone—receive immediate and permanent relief in the dry and salubrious atmosphere.

June, July, and August are sometimes inconveniently hot, the thermometer ranging from 80 to 110; yet the hottest days, owing to the almost total lack of moisture in the air, are more endurable than a temperature of 80° in the Atlantic States; and were it not for the thermometer, one could not believe it so hot. The work of the agriculturist and horticulturist go steadily on; and the first case of sunstroke has yet to be recorded. The nights are all enjoyable, and the total absence of dew renders sleeping out of doors in the open air on cots both agreeable and fashionable.

The evenings and mornings are something grand to behold. The twilight lingers far into the night; and the constantly changing hues of the sky form an ever varying picture of beautiful colors, fit only to be described by the pen of an artist deeply imbued with a love for the grand and beautiful in nature. That this noble valley has so long escaped the notice of most travelers and immigrants is probably owing to its distance from the great thoroughfares of travel extending from the Atlantic to the Pacific, coupled with the lonely aspect of the country lying between. That it was, ages ago, densely populated by a comparatively civilized people, is attested by the remains of ancient canals, cities, and towns, together with pottery and implements of stone scattered over its entire surface from end to end. It now contains quite a number of towns, the chief of which is Phœnix—now the capital—which has a population now estimated at 8000. The buildings, mostly of brick, are tasty and substantial. It has one railroad, two horse-car lines, three daily and two weekly papers; is lighted by electricity; has fine schools, and churches representing all the prominent denominations; and, in short, it compares favorably with any city of like population in the East.

The entire valley is well provided with schools wherever the population will justify, and the same buildings are occupied on Sundays for religious purposes. No one need hesitate to emigrate here on account of any lack of moral and intellectual facilities. We should like to expand the descriptive part of our article to include many subjects that space in a bee-journal would hardly permit; so we will devote the remainder to apiculture.

Bees were originally brought here from California, and are nearly all hybrids, being the common bee mixed with Italians and Syrians. They are large and industrious, being fully equal to pure Italians in honey-gathering qualities; but their tendency to bunch on the combs, hang down in festoons, and finally drop from the frame, renders it difficult to find the queen. Such qualities, inherited from the blacks, are so objectionable that I shall requeen with pure stock, and advise my neighbors to do the same. Unlike the East, here the farmers nearly all keep bees—enough, at least, to supply their own tables; yet only a few understand bee-keeping well enough to produce honey for the markets. The few who do are making the business quite profitable, usually averaging from 200 to 300 pounds to the hive. Dr. Gregg, of Tempe, told me that twelve hives once averaged him 480 pounds each. This will doubtless look like a "fish story" to some of your readers; yet, knowing the immense honey resources of the valley, and the character of the man, I can easily credit the statement.

The greatest source of supply is alfalfa, of which there are thousands of acres. It is mown from three to six times during the season, and affords a constant succession of bloom. The honey is light-colored, of excellent quality, and commands the highest price in market. Next in importance is the mesquite, which is abundant in all parts of the valley. The honey is thick, light, and of excellent flavor. The tree much resembles the locust, and blooms two and three times a year. Next in importance among the trees are the ironwood and palo verde (or green pole)—both evergreen—which produce a honey much like the mesquite, only not so thick. The palo verde is highly ornamental, the bark being perfectly smooth and apple-green. It blooms profusely, and its large tresses of small yellow flowers are fragrant to a surprising degree. The cactus family is well represented, and are all honey-producers. The giant cactus, of which there are thousands in the foot-hills, attains a height of from 20 to 50 feet, and a circumference of from 3 to 6 feet. It usually has from three to seven branches, each of which is surmounted by a crown of large white trumpet-shaped flowers, rich in nectar, which attracts the bees the same as does the basswood in the East. The fruit ripens in June, is about the shape of short plump cucumbers, which they much resemble, each of which is filled with a rich pulp, which looks and tastes like strawberries. Other honey resources are cat's-claw, arrow-weed, greasewood, cottonwood, asters (all varieties), and thousands of beautiful flowers, the names of which I would not attempt to enumerate, and which afford a constant season of bloom, so that there is not a month in the year when the earth is devoid of flowers, or in which the bee is not at least self-supporting. If this letter draws forth any questions, please send the same to the editor and I will answer them through the columns of Gleanings. A. J. King.

Phœnix, Arizona, June 8.

[Perhaps some of our readers may think that friend King has rather overdrawn his bright picture of Arizona. Either our good friend K. has not had Gleanings during the past year, or he forgets that we have had a couple carloads of that same Arizona honey, and quite a few of the readers of Gleanings will remember that Arizona, at some seasons of the year at least, produces some *very poor* honey, as well as some equal to any found in the world. The pure alfalfa, and perhaps also the pure mesquite, is certainly good enough for any market. But I suspect there are many other kinds that are liable to get mixed in at certain seasons of the year. As my next younger brother has for some time been a resident of Tempe, Arizona, I have had occasional glimpses all along of almost every thing that friend King mentions; and I believe it is true that the particular valley of which he speaks promises a great future, not only in bees and honey, but for fruit, vegetables, and almost every thing else that grows. By the way, why can't we have some of those cacti fruits? My brother found some growing by the roadside in Southern California, which I came pretty near pronouncing the most delicious fruit I ever tasted. Has anybody ever tried it, to see whether they would bear shipment to the East? The writer of the above, A. J. King, will be recognized by many as the former editor of the *Bee-keepers' Magazine*, of New York.]

UNITED STATES HONEY-PRODUCERS' EXCHANGE.

REPORT UP TO JULY 10, 1891.

Our reports from most States are very complete this month. We have devised a plan whereby the questions are sent out on three different dates. In this way the reports from distant points reach us as quickly as those near by. They were answered from the 6th to the 13th of July, the average date for the whole of the reports being July 10.

The average crop of honey gathered up to date for the whole of the U. S. is 47 per cent. This is much better than last year up to this time. In many of the Northern States linden was just opening when the reports were made out, and the prospects for a good flow from that source were reported to be excellent; but advices since, received from portions of New York and Vermont, say that linden is almost a failure. There are some localities in several of the Northern States where the season has not been as good as last, and bees have had to be fed up to July 1st, to keep them from starving.

In some instances it was caused by a severe drought, and in others by excessive rains. We now hardly expect to see a large crop of honey this year. It will probably be a little below the average; but that it will be better than last, there is no doubt. The quality of much of the white honey will be poor, on account of being mixed with honey-dew—some of it rendered entirely unmarketable. It is to be hoped that every bee-keeper who has been so unfortunate as to get any that is not palatable to himself will not put it on the market, and thus spoil the sales for thousands of pounds of good honey.

The following are the questions sent out to the respondents corresponding to the tabulated replies below:

1. What per cent of increase up to date?
2. What per cent of an average crop of white honey gathered up to date?
3. Prospect for a full crop? (1 indicates good; 2, fair; 3. not good.)
4. How does this compare with last year same date?

The tabulated answers correspond to the questions by numbers above, and are as follows:

STATE.	Qu. 1.	Qu. 2	Qu 3	Question 4.
Alabama	65	100	1	50 to 75 % better.
Arizona	15	10	1	About the same.
Arkansas	30	35	2	Some better.
California	20	25	3	Half as much.
Connecticut	25	50	3	Slightly behind.
Colorado	35	15	1	Better.
Florida	25	50	3	Better than 1890.
Georgia	25	95	1	Much better.
Iowa	35	40	2	Some better.
Indiana	60	65	2—1	Some better.
Indian Territory	5	10	1	Better.
Illinois	30	25	3	More honey-dew, less h'y.
Kansas	50	35	2	Not as good
Kentucky	20	75	3	Not as good.
Louisiana	60	90	1	75% better.
Maine	50	75	1	Better.
Massachusetts	50	75	2—1	Some better.
Maryland	35	60	1	Much better
Michigan	15	10	3	About the same.
Minnesota	30	5	1	Linden just opening.
Mississippi				
Missouri	35	50	2	Much honey-dew.
Nebraska	40	20	1	Much better.
Nevada	10	5	3	Much poorer.
New Hampshire	50	75	1	Much better.
New Jersey	15	100	1	Much better.
New York	35	20	3	Little better.
North Carolina	15	25	2	Little better.
Ohio	50	60	3	Some better.
Pennsylvania	15	60	2	Some better.
Rhode Island	15	50	2	About the same.
South Carolina	50	80	1	Much better.
Tennessee	40	90	1	Very much better.
Texas	50	35	1	Better.
Vermont	75	50	1	Much better.
Virginia	20	50	3	Much better.
West Virginia	40	75	1	Much better.
Washington	30	35	1	Much better.
Wisconsin	25	10	3	About the same.

P. H. Elwood, Pres.
G. H. Knickerbocker, Sec.

LADIES' CONVERSAZIONE.

SOME FLORIDA BEES AND BEE-KEEPERS.

HOW THE BEES CAME TO THE RESCUE DURING THE YELLOW-FEVER EPIDEMIC.

Since reading about Deacon Homespun's "knowin' bees." in the April 1st number of your journal, it occurred to my William (he's my husband) that perhaps your readers would like to know something of the bees that live and flourish in the "Great Lake" region of our flowery land.

We live, William and I, in a little village near one of the largest and most beautiful of Florida's lakes, and there are a few in our neighborhood who are or have been interested in bee culture. Whether it pays or not, I will leave you to judge when you have read all I have to say.

Four years ago my mother, who lived with us then, heard that an old man near had a "July swarm" that he would sell "at a sacrifice." As it was a late swarm, and he was very busy, he would ask "only three dollars" for it—in a box! Mother bought them. Two years after, all our State was under quarantine on account of the epidemic of yellow fever; and as we were a small community, our supplies were often delayed; and for weeks there was no sugar to be had for love or money. Thanks to the busy bees, this old man and his wife were well provided with sweets. They could hardly have got on at all without their honey, and were very enthusiastic in praise of their "good bees." In a few weeks he sold off his black bees to buy new colonies of Italians. The blacks were too vicious; and either he did not know of Italianizing by introducing an Italian queen, or else he was simply tired of bee-keeping, for he failed to buy more, and turned his attention to horticulture. He sold three colonies to a miller, who thought it would be nice to raise his own honey. When an examination was made as to the condition of his (the miller's) hives, one had become a prey to the bee-moth, induced by the close robbing of the first owner, and the whole colony had perished! The surviving bees were then placed under a shed, but the owner was unable to go near them, as, at his approach, the bees rushed at him, and inflicted so many stings he was glad to beat a hasty retreat. After a year of such experience, during which time one swarm issued and escaped to the woods, and no honey had been taken to recompense him for his numerous routs, a brimstone match was applied, and the fiery tribe annihilated, in order that the few pounds of dark strong honey might be enjoyed (?), as there was no other way to wrest it from its producers. Poor innocent bees! Who would not protect his home, his family, and the product of months of unceasing toil! Alas! all that was left of the much-praised honey-gatherers belonging to this knowing old gentleman were those my mother bought, concerning which more anon.

Then, in the opposite direction, lives another old man who keeps bees. He has stands and stands of them. His orange-grove is dotted all over with them till the darkies are afraid to venture from the fence to the house, except through the regular front path. Wise old man! he needs no dog—his watchers live at home and find themselves. His hives are about 8x12x14 inches, without frames, and these he considers rather too large! He has so many new swarms each year that more than half are not even hived, but allowed to move to the woods. A gentleman told me these swarms were quite large too—would make a ball eight or ten inches through. This remarkable apiarist doesn't rob his bees very often, and has very little honey on his table; but he thinks *he* ought to know something about the size of hives and the productiveness of bees, for he has had "forty years' experience" with them, and has got away beyond movable frames and patent hives, and gone back to the old box hives of our ancestors!

Well, down west, on the lake shore, lives a man who caught a runaway swarm, hived it in a goods-box, and, after some weeks, as no one seemed to know where it came from, he sold it to a neighbor for a couple of dollars, as he didn't wish to keep bees, for his enterprising boy made things lively every day by poking a stick into the hive-entrance to "make them more industrious." This neighbor had, some years ago, handled bees considerably, and in due time came with his wagon to carry home his new treasure. He intended to make an improved hive, and in a few years would supply this community and a city, some five or ten miles away, with all the "lymph of industry" that would be needed. He meant to send for a "king and queen" of some of the finer kinds of bees, and have such gentle and industrious stocks that he'd always have honey and never have stings! Success attended the removal, and all things were progressing nicely, when, lo! one fine morning, such as the Great Lake region of Florida alone can boast, he went to inspect them, and not a bee was to be seen! They had all decamped, or died from some unknown cause; so that poor man was out his $2.00, and not a pound of honey left behind to show to his interested neighbors, as a sample of what "might have been." Then, too, he was deprived of the opportunity of testing his "king bee" (!) much to the dismay and disappointment of some of us. MARIA MARIGOLD.

REPORT FROM MRS. HARRISON.

Emma Wilson wished to know how I succeeded with those combs that I stored in the cellar, whether moldy or not. As soon as the bees had been removed from the cellar, and the latter thoroughly cleaned, I returned hives of empty combs to it. Some of these combs had not been used the year previous. Whenever I found a hive destitute of bees I cleaned it, cut off all queen-cells, and prepared it for a swarm, and carried it into the cellar. These combs were all removed from the cellar by the last of June, and none were moldy (as the cellar has sub-earth ventilation), and not any had moth-grubs in them, with two exceptions; and these were put in late, and belonged to drone-laying queens, and had grubs in them when discovered. My opinion is, that combs that have been exposed to freezing, and stored in the cellar before the bee-moth is flying, would not be infested with them, provided the windows were covered with wire gauze. I never kept my combs as well, or with as little work, as I did this year, and the increase in colonies has been about equal to the loss in wintering.

I have done but little work in the apiary this year. The two preceding seasons of severe drouth destroyed the white clover, and we could see no profit in feeding when there was no prospect of a flow of honey. Bees have made but little more than a living, and much that they gathered was honey-dew. There has been abundant rain, and all nature is green and flourishing, and crops of all kinds were never more promising. July has been cool, and the prevailing winds have been from the north and west. Vegetation is so thrifty there may be a flow of honey during the fall. The largest flow of honey that this locality ever had was at this season. MRS. L. HARRISON.

Peoria, Illinois.

A LADIES' BEE-HAT.

I bought a man's large white straw hat for 10 cents, and wore it several times; but the straws would catch in my hair, and pull it, and make me feel cross. Then I got some cheese-cloth, and faced the brim by sewing a piece near the edge on the outside, then turning it under, and gathering it to fit the crown, and faced the inside of the crown with a plain strip. To finish it off, I took about a quarter of a yard, and turned the edges in and looped about the outside of the crown. That made it look nice. It is so light and comfortable that, without the veil, it is nice to wear in the garden or when picking berries. I make over veils of cheese-cloth, with black net face, and draw-strings at the top and bottom. I pin my hat on with long hat-pins. I handle bees only to hive them.

MRS. HANNAH RINEBOLD.

Overton, Pa., May 6.

HOW TO PREVENT SWARMS FROM ALIGHTING ON TALL TREES.

I wish to ask about hiving swarms with clipped queens. I lost swarms last season by their going into the top of a large apple-tree. I have never tried clipping queens. My hives are large chaff hives, and sometimes I am alone. I think I could move some of them, but I should like to hear the different methods discussed by the ladies. MRS. E. M. CROSSMAN.

Batavia, N. Y., May 8.

[We would advise you to clip your queens' wings. When a swarm issues, catch the queen at the entrance, put her into a cage, and the latter into a swarming-basket. The bees will probably return soon unless they have a virgin. Where swarms with a queen start to alight on high limbs they can usually be driven away and forced to alight on a lower position with a fountain-pump. We should like to hear how the ladies manage when their men are away.]

For the benefit of Mrs. M. A. Shepard, I will say that, if she will dip her fingers in kerosene, she can clean the propolis off easily.

MRS. A. B. WINDER.

Grand View, Iowa, May 6.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 190. *Would you have any drone comb in a hive? If so, how much?*

Yes—from two to four square inches.
New York. C. G. M. DOOLITTLE.

Yes—about half a comb in each colony.
Wisconsin. S. W. E. FRANCE.

Yes, a small piece the size of your hand in one of the outside combs.
Vermont. N. W. A. E. MANUM.

Yes; the women like to see the men around—a small amount.
Illinois. N. W. C. MRS. L. HARRISON.

I would not leave any in the hive when transferring. The bees will soon have enough and to spare.
New York. C. P. H. ELWOOD.

I prefer to have all worker comb; and even then there will be drones enough reared when occasion demands them.
New York. E. RAMBLER.

Yes, I would leave from five to twenty square inches in each hive. The extreme desire of the bees for some seems to justify it.
California. S. R. WILKIN.

No, I would not have any drone comb in the hive if I could help it just as well as not—not a cell. None is necessary. I know by extended experience.
Michigan. S. W. JAMES HEDDON.

One need not feel small on the existence of the poor drone. If you have from 20 to 200 drone-cells dispersed over 10 frames composing your brood-chamber, your colonies are well supplied.
Ohio. S. W. C. F. MUTH.

If you have but one colony, and no other bees near, I would leave a piece of drone comb as large as your hand or a part of a frame. With

100 colonies you will probably have drones enough, though you make no special provision to rear them.
Wisconsin. S. W. S. I. Freeborn.

No; the bees will always build enough when they need it. I use drone combs only in the upper story for extracted honey, with a queen-excluder.
Louisiana. E. C. P. L. Viallon.

No; you will always have more drone comb than you wish, in the average colony. But we do furnish whole sheets of drone comb to our choice colonies, so as to raise good breeding drones.
Illinois. N. W. Dadant & Son.

Very little or none, except in one or two of the best colonies. Drone comb and drones are not profitable. Better prune the comb closely, so as to exclude the drones.
Michigan. C. A. J. Cook.

No. I just wouldn't. They'll have a few cells in spite of you; but if I could help it I wouldn't have a bit of drone comb, except in one or two hives in which were best queens.
Illinois. N. C. C. Miller.

It is the normal condition of a colony to raise some drones. The most prosperous colonies I have ever seen had considerable drone-brood during the swarming season. I practice removing only an excess of drone comb.
Ohio. N. W. H. R. Boardman.

Why, yes; I'd leave drone comb in a hive unless I wanted to make it into wax; but I'd put it above a queen-excluding honey-board. If I wanted to raise drones to use in impregnating queens, I'd raise them in choice colonies, and raise none in other colonies.
Ohio. N. W. A. B. Mason.

I leave just as little as possible, which is enough. I don't mean to say that I go over the hives every week to remove drone comb, but all my colonies are originally all worker, and I try to keep them so. The bees will almost always find some place to put a few cells of drone comb, and this is all they need.
Illinois. N. C. J. A. Green.

I should much prefer not to have all drone comb rigidly excluded from a hive. Let each of the outside brood-combs have a piece four or five inches square. In that position it will not be used unless they eagerly want some drones; and when they do it is better to yield to them. I should expect brood in the sections, and refusal to build worker comb anywhere, of a colony denied their wishes to proceed according to nature.
Ohio. N. W. E. E. Hasty.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE UPPER STORY FOR BUILDING OUT CELLS NOT ALWAYS A SUCCESS.

I have had a large lot of cells torn down—or, rather, since honey has ceased to come—in the upper stories. Bees have gone back on me. While they will work out cells they fail to perfect them in some way, which I have not exactly caught on to yet, but I have lots of valuable experience. When the cells are within two or three days of hatching, they tear them down. It will not do in all seasons to risk an upper story as a nursery to keep cells in. I have tried it to my satisfaction and sorrow and disappointment, which I regret more than any thing else. I have about overcome the disappointment, and now have a fine lot of cells ready to hatch, which I hope to have and queen up every thing for the August rush.
Coronaca, S. C., July 17. J. D. Fooshe.

[We have been using the upper story for the rearing of cells with very good success in our apiary, and so far we have not experienced any bad results; but you are no doubt right in saying we can not always rely on it, especially after the honey season. I believe Doolittle admits as much; but he says that, when the bees refuse to complete the cells, feed them a little daily, so as to put them in the condition of a colony that is bringing in honey. By the way, feeding a colony always puts it into a normal condition—that is, if no honey is coming in from natural sources. It is a good plan, in introducing, you know, after the honey-flow, to feed the colony a little to make them good-natured. Bees are quite disposed to be contrary and to do things not in the regulation way, after nectar has stopped coming in.]
E. R.

FULL SHEETS VS. STARTERS IN THE BROOD-NEST.

I have been watching the discussions in Gleanings about full sheets vs. starters in the brood-frames. I have no ax to grind, as I never made a pound of foundation. I always hire my wax worked up or buy my foundation if I have not enough wax to make what I want. I have come to believe that, if there ever was an honest man, you are the one; but how you come to think that it does not pay to use full sheets of foundation is more than I can understand. There must be a great difference in locations. Here in Vermont I am very sure it pays to use full sheets. In 1888 I tried the experiment to my own satisfaction. I hived a swarm of bees on full sheets one day, and the next day I hived a swarm on starters equally good as the first, for any thing I could see. The swarm on full sheets filled the hive and four clamps, 64 one-pound sections, and nearly finished the whole of it. The swarm on starters did not fill all the frames with comb, and barely had enough to winter on. V. V. Blackmer.
Orwell, Vt., May 5.

YOUNG BEES AND LARVÆ CARRIED OUT; WHY.

I have a swarm of bees that brings out young dead bees, some in the larval form, some in the shape of a bee, only white; some almost full grown. Last summer they did the same thing. I examined them last summer when they were doing that. There were no moths, and, if I remember right, some bees that were full grown, or nearly so, were alive. D. A. Gaylord.
Rockland, Wis., May 9.

[We usually trace such results to the work of moth-worms; but in your case we should have to guess that the brood had at some stage been chilled or overheated.]

HONEY-DEW DRIPPING OFF THE LEAVES.

I inclose you a clipping in regard to honey-dew. W. G. McLendon.
Gaines' Landing, Ark., July 10.

I met a young lady who told me that she had been engaged in teaching a school up on the Boston Mountain, and that she had seen places where the pure honey was dripping off the green leaves in such abundance that on one occasion she dipped her bread in it and got honey enough in this way to make a good dinner of bread and honey.

QUEENS BY MAIL TO AUSTRALIA; BROOD-COMBS; HOW LONG SHALL THEY BE KEPT?

Referring to your notes about sending queens to Australia, I have had four queens from Benton arrive alive after from 42 to 49 days in the mails; but only about one in ten arrives alive. I have ordered them from various breeders in Carniola, England, and America, but have never received a queen alive except from Benton. I should like to ask how long you keep brood-combs in use in the brood-chamber. This question arises in my mind, because, here in New Zealand, owing to the prevalence of foul brood, it is unsafe to let the bees winter twice in succession on the same combs, and we are beginning to question whether, given the right conditions, and old combs, the disease will not naturally develop. Is foul brood more prevalent in California and those States of America where the bees fly every fine day during the winter, than in those States where they are kept confined during three months or more by cold? T. G. BRICKELL.

Dunedin, New Zealand, Mar. 24.

[Although we have had success in mailing queens to Australia, and failure too, for that matter, we may meet with entire failure. We have sent quite a number to Australia and the distant islands of the sea this summer, but as yet it is too early to receive reports. We shall promptly give the results as soon as we hear.

Regarding brood-combs, we have some that have been in use ten years that are good yet, and we see no reason why they should not be perfectly good for ten years to come. You must have foul brood pretty bad in New Zealand if it is not wise to winter or use combs the second season. It is quite possible that, where bees can fly nearly every day, the disease spreads more rapidly, and, at the same time, is more difficult to eradicate. If your countrymen would follow up your foul-brood law as the Canadians are doing, is it not possible that your foul-brood trouble would, in two or three years, be a thing of the past?] E. R.

BEES ON SHARES, AND NO QUARREL IN SETTLING.

I have just read an item on bees on shares, page 558, and am somewhat surprised at the position you take as to the inevitable quarrel, etc. Some ten years ago I took a lot of bees on shares of a friend—no writings but a verbal agreement to keep them as long as I wished—we sharing equally the honey, and also expenses of new hives, etc., I to return original hives and half of the increase. In five years I got quite enough of the bee-business, and we divided up. Then I put out my part to another friend, on same conditions. He has them still. There has never been the slightest misunderstanding or hard feelings between either of us. I have known of some others taking bees on shares, but have never heard of any quarrel.

Hyde Park, N. Y., July 15. A. T. COOK.

FEEDING SUGAR SYRUP TO FILL OUT PARTLY FILLED SECTIONS.

I have about 150 sections about half filled, which I should like to have finished for our own use. Could we feed sugar syrup and have them finished? Would it keep?

July 16. A SUBSCRIBER.

[No, don't feed sugar. Feed nice extracted, if any thing. Even though you did intend to use the sugar-fed honey yourself, the practice on general principles is bad. While it would be all right in your case, the general public might interpret it otherwise.] E. R.

SUCCESSFUL BEE-HUNTING IN FLORIDA.

In the A B C of Bee Culture you speak of the danger of smashing every thing when cutting bee-trees. I have had no trouble, and I have cut seven since I purchased my hives of you. You know in Florida there are acres and acres of forest, and it don't make any difference if I do cut a tree. After we find a tree we just carry a hive to it and cut it down. The instant it falls you must stop the hole up or you will have a lively time of it. Then we give them a good smoking; then chop notches in the side, and split the hollow open, from one end to the other. We then cut the brood and honey out. We take the best pieces of brood and fit them into the frames. After we get all the comb out of it we proceed to hive in the usual way. I believe I got over half a barrel of honey out of the seven, and still it was early. This is how I got my start with bees. I am going to Italianize them —after a while. H. C. HAVEN.

St. Francis Lake, Fla., May 10.

A FAILURE OF HONEY IN PENNSYLVANIA.

Honey season is over for this season, and almost a total failure. From 86 colonies, spring count, I took about 700 lbs. of comb honey, and increased to 120 colonies. This is the second year we have had an abundance of white clover, but no honey in it. The weather seemed to be about right too, but no honey. I can not account for it; so far as I have heard, the honey crop is no better. OSMAN MCCARTY.

Millsboro, Pa., July 13.

EARLY-BLOOMING LINDEN.

I have a linden on my place that seems at least two weeks earlier in blooming than any other specimen about here. Has an unusually early variety of linden ever come under your notice? I inclose a specimen of seed-pod, and also one of the common variety, which you see has not yet opened. LEVI DE FREEST.

Troy, N. Y., July, 1891.

BEES BOOMING IN MINNESOTA; 24 LBS. FROM ONE COLONY IN ONE DAY.

Bees are booming on basswood. One colony on the scales yesterday gained 24 lbs. We are having clear bright weather, and every thing looks lovely for the bee-keeper.

F. B. JONES.

Howard Lake, Minn., July 12.

[Friend J., that sounds like friend Hosmer of old. You don't tell us how many colonies you have in that location, where one gained 24 lbs. in one day. Let us know more about it, and please give a report of your whole crop.]

SUCCESSFUL WINTERING IN THE DOVETAILED HIVE WITH CHAFF CUSHIONS.

I use the Dovetailed hive, and, with the chaff cushions, I have wintered out of doors and lost but two swarms out of thirteen, and they not by cold. One lost the queen in the winter, the other died for lack of stores. We have had a long cold winter in this region.

Spencer, Mass., May 4. J. S. GLEDHILL.

SOLICITUDE FOR A. E. MANUM.

My solicitude goes out for Mr. Manum with his 600 stocks of bees to work all alone. How can he stand this and live? Better not, Manum, is my judgment. B. C. VANDALL.

Monterey, Cal., May 2.

From 100 colonies I have not 50 lbs. of good honey, the rest nothing but honey-dew.

ERNEST SHUMAN.

Breckenridge, Mo., July 13.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LIKE TO RAISE CROPS.

WHAT WE ARE SELLING IN THE WAY OF GARDEN-STUFF, JULY 15, AND WHAT WE ARE GETTING FOR IT.

Kidney wax beans have been on the market for about ten days, and we are still getting 10 cts. a quart for them, or $3.20 per bushel. Just think of it! I suppose we might just as well, while we were about it, have planted enough so that we could have sold them at 50 cts. a bushel; but we were afraid of getting too many of them, and so we planted only a limited area for the first crop. Fruit has been scarce and high, and this has seemed to make garden vegetables scarce and high. We are getting 50 cts. a peck for peas, and have been for the last six weeks. Some of the time we had 60 cts. We are having quite a trade in Eclipse beets at 5 cts. a pound, tops and all. As some of them weigh a pound, it makes a pretty good business. We might sell them lower; but we sowed such a limited quantity that they would not hold out if we did. We get 5 cts. a pound for Jersey Wakefield cabbage. It is the same with this as with the others—we were afraid of getting too many. If we should get more than the market could use, we could come down to two or even one cent a pound, and at this price it does not pay very well. Cauliflower we succeeded in putting on the market, even before we had new cabbage, and I think we can do it every time. The cauliflower makes heads before the cabbage does. We started it at 15 cts. a pound; but as we planted almost too much, we put it down to the price of cabbage, and could not get rid of it all even then. A good many would pay more for cabbage than they would for cauliflower. Perhaps friend March's fine strain of seed has had something to do with our getting nice heads of cauliflower so early. We can dispose of more cauliflower in our market quite late in the season, say after frost has killed the cucumbers, than we can where it is put on the market so early. By the way, we have a fine lot of cauliflower-plants that we are going to put out about the first of August, to have a good lot for pickles. We have been selling White Plume celery for about two weeks. We got at first 20 cts. a pound for it; but now we have just a cent an ounce, and we are having a nice little trade on it. You may remember that we planted some Corey's Early corn in our steam hotbed. There was just enough to go under two sashes. It was planted between onions under the sash; and when the onions were big enough to pull, the corn had all the ground. Well, the many frosts in May made us considerable trouble in handling the sash; but we have just sold the last of the corn for $1.63—about 80 cts. per sash for corn, to say nothing of the onions, so we certainly received more than a dollar per sash, which is very good business, even if the sash did have to be moved a good many times. I am ashamed to say, that, up to the present writing, we have not been able to get a cucumber of our own raising—no, not even by starting them under glass. Perhaps you think we are very awkward. Well, that is what I think. But I feel just like saying that the cucumbers have been very "awkward" too during this past season. We are selling about half a bushel of Grand Rapids lettuce per day. We get only 5 cts. a pound for it, but it pays tiptop to raise it at that price. We have been selling onions, started under glass, for more than a month. The White Victoria is certainly the handsomest and sweetest. They are now as large as good-sized apples, and I believe they make large onions quicker than any other that has been on the market. The Spanish King is growing with great vigor, but it does not mature so soon as the Victoria. Early Puritan potatoes are now down to 35 cts. a peck. The first we dug brought 60 cts. We sell radishes at 5 cts. per bunch of one pound. We have been getting 10 cts. a pound for summer crookneck squashes, for perhaps ten days. It seems almost wicked to charge so much, but we can not supply the demand as it is. Purple-top White Globe turnips are selling tiptop at 4 cts. a pound. We have some beautiful ones, bigger than the biggest kind of apples, and, when properly cooked, they are certainly nice.

Now a word about the high prices we get. Quite a few have accused me of a lack of conscience because I consent to take such prices. Why, dear friends, I am trying to demonstrate that farming *does* pay—that is, *my* kind of farming. We have tried, at times, putting the prices down; but the boys would sell out their supply before they had gone three or four blocks, and then our customers further along on the route would not get any at all. The only way I know of is to let supply and demand regulate the price—that is, charge enough so that what we have to put on the wagon will be sure to go around, or pretty nearly so. For instance, when we had our first large heads of cauliflower, I said, "Boys, I am sure that somebody will give 15 cts. for that head of cauliflower. If they won't, bring it back."

Sometimes Mr. S. says that people scold a good deal about the prices we charge. Said I, "But you sell *out* every day what you have, don't you?"

"Yes, the people buy them, even at the high prices, because there is no opposition, and they can not get them anywhere else. But still they complain."

"Oh! never mind the complaining so long as you have nice stuff, and sell it all out."

Now, may be you think this is hard philosophy, but I don't. There is quite a tendency to think that farming and even market-gardening are not aristocratic. Very few people want to engage in either one. That is all right. Every man to his taste, and let every one do what he likes. But where there is no opposition, there is certainly nothing wrong in taking what your product will bring. We are selling red raspberries at 18 cts. a quart now. A great many scold about it; but there is not a raspberry in town anywhere; and if we get only 15 or 20 quarts a day, I think there is nothing wrong in taking 18 cts. By the way, there is something the matter with raspberries this year. They act contrary. Even friend Terry said that his raspberry-patch that he used to take so much delight in is now a place to be avoided. He laid it to the frost. But I am inclined to think that raspberries have been spoiling from blight, or something of that sort, for two or three years back. It seems to be getting worse and worse. No matter how much we cultivate and manure the ground, they won't grow and act thrifty in the way they used to. Even new plants on new ground act the same way.

GETTING UP A SUMMER SHOWER BY ARTIFICIAL MEANS.

A few days ago we tried spraying about half an acre of our market-garden with the new steam-pump. It took us about two hours to wet the half-acre down pretty thoroughly, and it took 200 barrels of water. The windmill went right at it and replaced the water in a few hours; but it was pretty severe work for one man for two hours to throw the water over the ground evenly, and then it took some little time more to put away the things. The water was not applied as evenly as a natural shower, after all, and a good part of the ground looked dry after about 48 hours. Even where you have the best of appliances right on hand, it is expensive work to irrigate by throwing the water. In our market-garden stuff, it seems to me it will be considerable trouble to run it in the furrows; but I guess that running it in the furrows will be the cheapest way after all. One difficulty is, that the ground must be graded so that the water will run just fast enough and not too fast.

Perhaps I have been dull heretofore, but it was an astonishment to me to find that the spray of the steam-pump thrown high into the air toward sundown will produce as handsome a rainbow clear across the sky as anybody ever saw put up by dame Nature. I sent Huber to tell the women-folks over at the house to come over on Ernest's lawn and see the beautiful rainbow. No one came, however. They looked out at the sky, and did not see any rainbow, and wisely concluded there was not any. Then I sent an invitation to the girls in the office to come. They also looked out of the window, but they didn't see any rainbow, and therefore thought there wasn't any, and so did not come. Yet a hundred persons while seated on the edge of the lawn might have seen a most beautiful rainbow spreading its perfect arch over the whole heavens; and it was just as plainly painted on the sky as the moon and stars that have the sky for a background. The reason I mention this is because it illustrates so clearly how differently things look from a special point of view. On the lawn where I sat, there was a rainbow. Over at the house and up in the office there was not a speck of a rainbow, even if I did say so. These good friends, however, might say, "Well, what is a body to do? Can't one believe the testimony of his own eyes?" I answer, "No. my friend, you can not always believe the testimony of your eyes. The statement of a friend is very often more to be relied upon than what you see with your own eyes, or, if you choose, what you *do not* see." And this brings out another great truth. There is no rainbow across the sky under any circumstances, and *never was*. Next time you look up and see a beautiful bow placed there by the Almighty himself, remember that there is not any bow there at all. The bow is really in your own eye, and only *seems* to be on the sky. If somebody disputes this, you just tell him it is true, because Uncle Amos said so.

RAISING CELERY-PLANTS.

With all the celery there is planted out at the present day, I have many times wondered where people get all their plants; and I have wondered, too, how many seedsmen can offer them so low if they are all transplanted. As the seed catalogues lately do not say any thing about transplanting, I am forced to conclude that it has been, to a great extent, skipped or omitted. But in that case I wonder how it is that customers succeed in making them grow. Where they are grown in the seed-bed, unless the seed is carefully spread over considerable ground, or unless the plants are thinned out afterward, the result is a big spindling top with very little root. Transplanting is the only way of getting even, regular-sized plants with large brushy roots, that I know of. We have this season succeeded in getting very early White Plume celery without having scarcely a plant send up a seed-stalk. In the first place, we got our seed of Livingston, of Columbus—the same seed that gave us such beautiful plants last season. I think our first sowing was about January 1st. When the plants had two or three second leaves they were put into shallow boxes with the poultry-netting frames we have described. They were kept growing in the greenhouse during the winter months; and by the time they could go outdoors each plant had a great bunch of bushy roots with comparatively small tops. These roots had so interwoven themselves through the shallow plant-boxes that the whole could be taken out of the box, like a sod of turf. We just took the butcher-knife, and cut this sod up into little squares, each plant being the center of a square. Although this was a dry time when they were set out, scarcely one plant in a thousand failed, and we commenced selling the celery toward the last of June. Now, there is one thing about raising celery-plants that we have learned by experience. They will grow and do well where they get almost no sunshine at all. Our plant-beds, that were made some years ago at so much expense and pains, some of them having even the sub-irrigation (of father Cole memory) under them, we could not very well throw away without quite a loss. The reason why they are fit only for celery, is that the new buildings we have been putting up have cut off most of the sunshine. Well, for years back we were coming to the conclusion that celery did as well as, or even better, when shaded most of the time, than when right in the sun. So this past season we have put our cabbage-plants in our new garden across the road, and filled the old plant-beds and greenhouses entirely with celery, and we never had celery do so nicely, suffer so little loss in transplanting, with so little trouble in shading. With a hose and sprinkler, we simply keep the ground wet when it does not rain; and almost every plant, even if put into the ground by awkward boys, takes right hold and grows. Now. if one wants to raise celery-plants for sale as a business, he wants to use a place that will be in the shade during a greater part of the daytime.

MAKING ONE CROP QUICKLY TAKE THE PLACE OF ANOTHER.

With our highly manured, thoroughly drained, high-priced ground, we can not afford to let it lie idle any more than we can afford to let a high-priced competent man stand around waiting for a job. In fact, to make it pay, the ground must be cropped incessantly — certainly during the summer time if not during the fall and early spring, and sometimes even during the *winter*. For an illustration, let us take Wakefield cabbages. Some plants head up very quickly—sometimes only two or three weeks after they are put out into the ground, providing the soil is very rich and the plants are very large and strong. Well, after the head is cut, what then? Why, the cabbage then becomes at once, to all intents and purposes, a weed. Cabbage and cauliflower, with the heads cut out, should not be tolerated on the ground for 24 hours. Pull them up, shake off the dirt, and give them to the pigs; or, if there are too many, put them on the compost heap. Then what? Why, plant another cabbage or cauliflower in its place, and so on. We have, in a nice piece of ground, kept a continuous crop of cabbages almost all summer. If you don't want cabbages you can put in tomatoes, a hill of white beans, melons, or squashes. But there is one objectionable feature about *mixing* crops in this way. It is a good deal more trouble to gather them, and they are a good deal more liable to be neglected. If you fill up cabbages with *cabbage* it makes no confusion in this way. There are objections, however. First, you can not clear the ground off entirely for some other crop; second, the ground is liable to become hard in the row, unless you spade up the place where the plant has come out, before you put in another, and this is too much work. Now for a plan that we have begun practicing this season, that seems to fill the bill, and at the same time makes tilth supplement manure. As a matter of course, we keep the horse and cultivator going constantly; and with the trouble we have had from drenching rains, especially on that side hill by the windmill, we have found it necessary and desirable to hill up most of our crops, making a pretty deep furrow between the rows—not such as is made with a shovel-plow, however; but we are greatly pleased with a sort of *small* shovel-plow that goes on the back end of the Planet cultivator.

We like this, especially where the soil is not as deep as is desirable. By running this shovel-plow or furrower between the rows, it throws fine soft ground up around the potatoes and other plants, and *doubles* the depth of soil, as it were. I have known for years that I could get a good crop by pulling up the surface soil round the plants so as to make a broad flat-topped hill, as it were. This hill is of fine soft earth; and it makes the "dust blanket" we have read about, and keeps the ground from drying and cracking. Of course, we can not have our stuff so close together when we do this. Friend Terry recommended putting strawberries four feet apart; and while we had our marker ready we have put potatoes, cabbages, and some other things, four feet apart. Well, at this distance we are just in shape to make a furrow between the rows, and double the depth of soil around the plants, at the same time leaving the hill so broad that it does not dry through, neither does the rain all run over into the furrow. And when we have these tremendous rains that make mud of every thing, these raised-up rows with a pretty deep furrow between them are just the thing. This sort of shovel-plow on the Planet cultivator will, if you push it down deep, leave the *bottom* of the furrow almost hard and bare, and the ground will be likely to crack. To obviate this, the next time through we go with a cultivator rigged out with the small teeth only. This mellows up the bottom of the furrow down as deep as the plow went, and sometimes, may be, a little deeper. I know this is opposed to the teaching of Terry and others who practice flat cultivation; but with sandy soil the flat cultivation may be better; but with our clay soil I do not like it—that is, especially for a wet season. Now, then, when your cabbages are, some of them, almost ready to be cut, and your early potatoes so you can commence digging them, I will tell you what we do.

We run the cultivator on the bottom of these furrows until the ground is so fine and soft that you can easily put your hand down into it all over. When it is in this condition, plant between the cabbages, potatoes, or any other crops, more cabbages, more celery, tomatoes, white beans, or any thing else that matures quickly, and by the time the plants are well up and ready to grow, remove your first crop and then work the cultivator in the same way where the first cabbages or potatoes stood; and I am not sure but you could put in a third crop of spinach. This enables the cultivator to fine up the *whole* of your ground. In fact, while you are fining it up to make the first crop grow, you are also preparing the very nicest kind of seed-bed for the succeeding crop. You can in this way manage so as to have a strong heavy crop cover the ground almost all the while; whereas if you wait until your vegetables are all off from the ground, and then plow and harrow it all over, and sow your seed, there will be several weeks when no crop of any account occupies the ground. The seed must germinate, and the plants must get to be of sufficient size for the roots to occupy the ground. During all this time your high-priced, highly enriched ground is, comparatively, wasting its time; and this, too, right in the best growing season of the year. It is like letting a big strong man do a child's work because you have nothing else for him to do. Another thing, one of the most important things toward getting a crop is to have your ground *thoroughly pulverized*, and nothing does this so effectually as running the cultivator through it every three or four days for several weeks; then try it and *see* how things will take hold and grow right in the middle of the furrow, where your cultivator has been going back and forth all the fore part of the summer. Then when you get the first crop out of the way, and repeat the process between the furrows of the second crop, your ground is in most beautiful condition so far as tilth is concerned. Few people have any idea of the amount of stuff that a piece of ground can produce when it is all the time covered with a rank growth of vegetation, about as thick as it can stand. Ground in this condition also suffers much less from drouth; for where it is pretty thoroughly shaded all the while, the sun does not seem to have a chance to dry out the moisture. A few minutes ago I wanted to find some carrots large enough for the wagon. Many of them had good-sized tops, but no bottoms. Finally I found where a Hubbard squash had run over the carrots so as to shade them pretty thoroughly. This had the effect of keeping it still damp from the last shower; and right here I found carrots twice as big as where the ground had not been shaded. There are quite a few things that will do better in the *month of July* if they are pretty well shaded from the burning rays of the hot sun; and a luxuriant growth of almost any thing, so as to cover and shade the whole surface of the ground, does this.

A VISIT TO W. I. CHAMBERLAIN.

A FARM THAT HAS BEEN UNDERDRAINED FOR 15 OR 20 YEARS.

Before we take leave of friend Terry, I wish to say something more about his nice potato-fields. At one time I climbed over the fence and went out in the rows and kicked my feet in the soft dirt, and said:

"Friend T., if I understand you these potatoes have never been hoed at all."

"You are right. There has never been a hoe in the field."

"That is, the weeds were all so thoroughly destroyed by the cultivator, Breed's weeder, and similar tools, before they came up, and after they came up, that no hoeing was necessary."

At first sight there did not seem to be a weed in the field; but I commenced examining hill after hill, for it seemed to me almost impossible that there should not be a weed lurking in the potato-tops sooner or later; and, sure enough, I found a stalk of red-top. This is a peculiar weed that our boys can not see. They will go through a field and get out every thing else; but this looks so much like a potato it eludes their vigilant eyes. It makes me think of what Prof. Cook has told us about the mimicry among insects and small animals. Friend T. smiled as he added:

"It is true, Mr. Root, we did not use a *hoe*, but we did have a man pull out the occasional weed that escapes the horse-tools. A relative, who is not able to do severe labor, has this season taken care of the bugs; and he also, while doing this, gets out these stray weeds. But even the sharpest man is liable to skip that kind of weed now and then."

"And you don't even *now* use any Paris green nor any sort of poison?"

"Oh! we could not afford it. As we plan our work, the poison *alone* would cost more money than we pay the man who keeps the fields free from bugs."

Now, friends, please notice that Terry's whole system of working is all hinged or interlocked together. With such land as you and I have, or, rather, with land in the trim that yours and mine is, a good deal of it, he would probably use hoe and Paris green both. He has kept weeds from going to seed for many years on his grounds. He has also got every acre so it is fine and soft, and all works readily under the harrows and weeders, and in a like manner the bugs have been prevented from "going to seed" until very few of them make their appearance on his premises. If he should let the bugs get ahead of him, as you and I do, very likely poison would be the cheapest way to "catch up." And in like manner, if the *weeds* should get ahead of him as they do of us, it would be only a question of hoes or a loss of crops. I do not mean that you and I must *always* use hoes and poison, for we can get our land in trim just as well as he can—some of us better, because we have better ground. I am getting up to it gradually. The potatoes we are digging now, and which come pretty close to 400 bushels per acre, have never been hoed. We are retailing them around town at 30 cts. a peck; but I am expecting every day that competition will bring them down to an even dollar a bushel. To-day is the 24th of July.

THE FREEMAN POTATO.

Perhaps some of you have heard of the Freeman potato. Wm. Henry Maule gave Terry a barrel of these potatoes, asking him to make as many bushels of them as he possibly could. Now, Terry does not fuss with greenhouses and hotbeds, so the best he could do was to cut the potatoes to one eye, and then split the eyes. He has done this, and made them cover pretty well 1¾ acres. Of course, they do not look quite as strong and thrifty as his regular fields, but they come pretty near it. This crop of Freeman potatoes will be worth, at Maule's prices, several thousand dollars. I copy the following from the *Practical Farmer*, of July 18. It is what friend Terry says in answer to a query in regard to these potatoes:

> I like the shape and looks of the Freeman potato very much. It is simply perfect, being oval-shaped, with eyes on the surface. It certainly has strong vitality or we could not have got a good even stand on 1¾ acres from a barrel of seed. It is a pretty hard test when one asks a full top from split eyes. We shall get it, and cover the ground, if we have a reasonable amount of rain. Of course, such small beginnings can not stand drouth as well as larger ones. The eating quality? Well, we did not eat very many at $3 a pound! I will tell you about that a month later. As a keeper—a very important point with me—it is all right. I should judge our seed was dug as early as August, at least, and we kept them through till May in good shape. I think I can keep them in a pit, without a sprout starting till that date. As far as I have got, I expect great things from the Freeman potato, but it will need more time to actually prove it.

SECURING NICE POTATOES FOR THE TABLE IN APRIL AND MAY.

Friend Terry has made a good many experiments in reference to this matter. He is so certain that he wants all his potatoes hard and firm, without any sprouts when planting-time comes, that he buries all his potatoes for the seed, in a pit. This is covered with straw and earth in the usual way, but he puts on only a little at a time. When there is a good hard crust frozen over the potato heap he puts on more dirt and lets *that* freeze, until the potatoes are finally incased in frost. Then straw is put on over this frosty coating, to prevent it from thawing out; and in this way he keeps them until planting-time in May.

Before I started away he wanted me to go down cellar and look at a new potato called, I believe, Early Rochester. His good wife objected to taking Mr. Root into the cellar, on the ground that it was not "slicked up." I managed to get permission, however, all the same. I wish all the readers of GLEANINGS had cellars *capable* of being slicked up like this one. The different rooms in the cellar were made as nice and clean with cement and plaster as most living-rooms. The Freeman potatoes were great whoppers; and although the sprouts had been rubbed off several times they were firm and solid, and just splendid to eat, as I found out afterward; and this, mind you, was on the Fourth of July. Now, there is something peculiar about this potato. It was sent to Terry to try with his own; and on the first trial he pronounced it not equal to some he had already. For some reason, however, he gave it another trial, and the *next* year it showed marked superiority; and this season it is just doing grandly. The moral is, don't be in haste to condemn a thing from one season's trial only.

I confess I felt a little sorry when I was obliged to bid good-by to this pleasant home with its pretty dooryard and surroundings. I will tell you one reason why it is possible for friend Terry to keep his place so neat and clean and tidy. He is a *specialist*, or a *specialist farmer*, if you choose. He has not, lying scattered around his house, barn, and premises, the traps and "calamities" that a great many of us have for so many various lines of industry. He does *one* thing, and lets his neighbors do the other things. I do not wonder he likes to stay at home. The man or woman who would not, with such a home as his, would be a wonder.

Prof. Chamberlain's farm is not very far from friend Terry's, and close by the town of Hudson, Summit Co. Even though it was the Fourth of July, I found his son and hired man in the barn, painting a wagon. I mention this because most farmers' boys would think they could not work on the Fourth.

One of the first things that attracted my attention was a cistern to supply his cow and horse stables with water. This cistern was both above ground and under ground; that is, it was built entirely above ground originally. This saved the expense of digging. In the second place, it was entirely under ground, so as to be safe from frost, for it is under the bank that leads to the upper story of the barn. The cistern is 9 feet deep, and 15 feet in diameter. The barn stands on a slight side hill, so it is an easy matter to lead the water from the extreme bottom of the cistern right into the horse and cow stables, into an appropriate watering-trough for each. Now, the most of us would think that, if we had the water so it would run by opening a valve, that would be handy enough. But friend Chamberlain has a large tub with a float in it, so the water always stands just so high. It is large enough for several horses to drink from at once; and just as fast as they drink the water out, more comes in. This apparatus has been in use for 17 years, and has worked perfectly, and without repairs, except new hoops on the tank, and without freezing. When we take into consideration that every barn should have eavespouts any way, the arrangement is not so very expensive. The cistern holds 350 barrels. Only those who have had a similar watering-arrangement so as to have water always at hand right in the stables can realize the amount of time and labor saved compared with the way many farmers manage to water their stock. Another thing, I believe it is pretty generally conceded that rain water is more wholesome for our stock than any other; and friend Chamberlain declares that, if all the water is carefully saved that falls upon the roof that shelters the horses and cattle, and their hay and grain, it will give them all the water they will ever need to drink; therefore all that is wanted is the necessary spouting and a cistern to hold the water. With this arrangement, mind you, there is no pumping at all; neither are you obliged to trouble yourself even so much as to open a valve. The horse is simply led up to the watering-tub; and as it is located right where he passes when he turns around to come out of his stall, when he is used every day, he waters himself.

The farm is so rolling that most people would think there was not any need of underdraining. Some of the drains have been in use for 17 years. His orchard is underdrained, and this we examined first. On the underdrained portion very few trees have ever died out, while on the other part a great portion of them had to be replaced. My impression has been for some time, that more fruit-trees are killed by too much wetness than by almost any thing else. On our own place, wherever, by any accident, a puddle of water has stood for even a few days near a fruit-tree, it has been either injured or killed outright. The most marked feature of underdraining, however, was soon brought to our attention by our enthusiastic friend in his own peculiar and emphatic way. He took us to his grass land, and where it was quite rolling, too, and showed us how many kinds of weeds, especially plantain, had made their way on to the farm, and crowded out the timothy and clover. It were well to state right here, that friend Chamberlain has been absent from his farm for eleven years, and returned only last fall. He was for many years secretary of the Agricultural Department of the State of Ohio, and more recently President of the Iowa Agricultural College. But last fall he came back to his own farm, and has so far refused all appointments to leave it. He wants to be at home. Well, during his absence of eleven years many things had, as a matter of course, run down. He showed us the fields infested with plantain—that is, in spots. This land was not underdrained. Then he took us to the opposite slope where it was underdrained years ago, and showed us a wonderful growth of clover and timothy both, without any weeds or plantain to be seen. The point is, that plantain survives on wet places, where grass and valuable crops are killed out by wet. I had suspected this before, but was not prepared for such a wonderfully marked exhibition of the good effects of underdraining. Perhaps I should mention that our little party included Mr. L. B. Pierce, of Tallmadge, O., who is so well known as a writer for our agricultural papers, and our good friend Gould, who has for so many years written for the *Ohio Farmer* as "Sam." Sam is a dairyman, and, of course, was alive to every thing pertaining to growing cow-feed. Some of those present suggested that perhaps the two pieces of ground had different care. It could not be called two pieces of ground, however, because it was one large field of timothy; and in order to *demonstrate* the advantage of underdrained ground, they had for years *worked* and *sowed* the ground in strips or lands running directly across both pieces; so the drained and underdrained had precisely the same care and treatment in every respect. It would seem that, no matter how sloping the ground, if it be thought desirable to plow it to put it into crops, it is also desirable to have it underdrained, and this in a soil that is considerably more gravelly and porous than our Medina clay. Friend Chamberlain uses phosphates largely on his land; and he has been in the habit for years of running the drill once or twice through a field with the phosphate shut off; and this year the effect of shutting off the phosphate through a strip of wheat was so marked that friend Pierce suggested his hired man must have made a mistake and shut off not only the phosphate but the *wheat* also. I have seen the same thing on our own grounds. Shutting off the phosphate on a piece of poor ground was almost equivalent to shutting off the grain also. In fact, it made a clearly defined lane all through the field. Friend C. keeps cows, and, of course, has immense quantities of manure to spread on his land; and we saw great flat-topped pyramids already deposited in the field, ready to be put on the wheat with the manure-spreader when springtime comes. Friend C. is also a strong advocate for osage orange for hedges. This was a little surprise to me, for so much has been said about robbing the soil of its fertility near the hedge, and the labor of keeping them in trim, that I had begun to think they were mostly abandoned. In reply to my question, our host called us to a hedge along the roadside, that had been there more than a dozen years. It was, perhaps, 3 ft. high, or may be a little more in places, and not more than 2 or 2½ through. It certainly did not occupy very much room above ground; and as a proof that it did not below ground, we saw good wheat growing so close that the well-filled heads were right up against the hedge. And so it seems that hedge fences, like many other things, need only a little care, if that care be given at just the right time. I have forgotten how many rods he trimmed with a sickle, before breakfast; and this trimming is needed so seldom that it certainly could not be considered a very great bill of expense. There are no posts to rot off, no boards to be blown down by the wind, no sharp wires to injure animals. Besides, the fence is exceedingly pretty, and more ornamental than any other fence I know of, and by no means "as homely as a hedge fence." The trouble with all these fences is like the trouble with a great many other things, only it works the other way. If you *neglect* a hedge fence it gets bigger and bigger (and homelier and *homelier*), instead of tumbling down and going to decay as most other fences do. A landscape gardener has been at work at friend C.'s dooryard, and a great variety of shrubs and plants are making an excellent growth, and giving promise of future usefulness and beauty. As I shall probably have occasion to refer to this visit a good deal in the future, I shall say nothing more about it just now.

MYSELF AND MY NEIGHBORS.

Remember the sabbath day, to keep it holy.—Ex. 20:8.

This subject has been again brought to my mind by the Sunday excursions that are being pushed, not only in our own county, and on our own railroads through our county, but even abroad and all over our land, to a greater or lesser extent, judging by the advertisements I see in the papers; and, by the way, I have been surprised and astonished that editors of home papers should permit a railroad company or anybody else to advertise broadly and unblushingly a pleasure-excursion to some pleasure-ground *on Sunday*. Very likely more than one good friend of mine who reads GLEANINGS will feel like saying something like this:

"Look here, friend Root; you have your

opinion in regard to these matters, and are no doubt conscientious and honest. But is there not a large class who are also conscientious and honest, who have different opinions? Many of us are compelled to work in stores, factories, or offices, the whole week. Our bread and butter depends upon our sticking to our places unless our bosses will let us off for a day now and then. *We* need the open air and outdoor recreation just exactly as much as *you* do. If there is no opportunity afforded for taking it any other day in the week than Sunday, and while our health and the health of our wives and children is suffering for this same rest and recreation in the open air, may it not be possible that we are *right* and you are *wrong?*"

Dear friends, I have considered this matter well and carefully. It has been presented to me by smart, intelligent men—by men who are managers, and who occupy other high positions in our railway corporations; and I have waited until I have examined the evidence carefully on all sides before undertaking to speak to you on this subject in print.

I confess that, in my boyhood days, I had a sort of feeling in regard to Sunday that might possibly have had some superstition in it. For instance, I satisfied myself by many and repeated trials that nothing prospered in the way of work or play if I undertook it on Sunday; and I have known other boys to say the same thing. If you go fishing you have bad luck, as a general thing. If you go nutting, or go out riding or hunting, there seems to be a sort of fatality following such things sooner or later. Now, you will say this surely must be superstition. In one sense it is superstition, and in another it is not. The Christian religion and Bible teachings are certainly founded on sense and reason, if any thing in this whole wide universe is founded on sense and reason. Most of you know how little patience I have with any thing that approaches "signs," or even forms or ceremonies. There are places in the world even now where they pretend to cure diseases by saying over mysterious words. There are places where they believe in witches and witchcraft. Yes, there are people among our own neighbors, not to say in our homes, who doctor their horses and cattle, sow their seeds, etc., by rules that have no sense nor reason about them. There are people who follow old superstitions that have been handed down for ages, when there is no possible chance for any thing but nonsense about it. Now, is this idea that nothing prospers, if undertaken on Sunday, superstition, or is it sense? You may know of people who refuse to go into any undertaking on Friday because Friday is an unlucky day. I hope there are not very many such, however. Now, perhaps some of you would ask, "Bro. Root, do you mean to tell us that there is something mysterious about it that makes Sunday an unlucky day in just the same way that these people believe a mysterious fatality hangs over the day of the week called Friday?" No, I do not believe any thing of the kind? and I do not mean to teach any thing of the sort. You may remember that I urged very vehemently in a former paper that our days of the week were all alike—as much alike as two peas or two grains of sand. The sun shines and it rains on Sunday just exactly as it does on any other day. Furthermore, it is most emphatically true (for it can certainly be proved without question) that the days of the week as we have them now are simply of man's making. They were so named for convenience; and if people got out of joint, as they used to in earlier times, and hitched a day forward or backward, it would certainly make no difference to anybody, if all were agreed in the matter. In sailing around the world in one direction a day is to be dropped; but if you sail in the other direction, there must be two Mondays or two Fridays as the case may be. This is necessary in order to catch up or "catch" on to the days of the week where you happen to land. If this be true, why shouldn't every one decide for himself in regard to what day shall be Sunday, or whether there shall be any Sunday at all? Perhaps if you were a Robinson Crusoe, and lived on an uninhabited island, such might be the case. I think, however, our Robinson Crusoe would find it convenient to set apart one day as Sunday; and if he had a Bible with him, I am inclined to think he would decide to keep the day according to Bible teachings. I recently heard a public speaker make the remark, that, if he were living alone on an island he would have no scruples against getting out his horse and buggy Sunday afternoon and taking a little ride all alone. Why, then, would it be right on this island, and not right as we are situated with "neighbors" all around us? Because God wishes us to obey his commands in the *spirit* of them, and not in the *letter*. A crazy man, we are told, chopped off his right hand because the Bible commanded it. He took an *exceedingly* literal interpretation of the Bible teachings, and put it in practice; and I am afraid some, otherwise good Christian people, make mistakes in a like manner, although, of course, none of them carry it to such a terrible extreme as did this poor brother with his crazed brain. Of course, none but a crazy person would think of doing any thing of the kind. Thank God, *we* are not crazy—at least not many of us. Now, do you ask if you are to obey the Scriptures, or be religious, simply because our *neighbors* are looking on? Not at all. I will try to tell you what I do mean. I said, a little while ago, that the Bible commands are reasonable. If we look into the matter a little we shall find that they commend themselves to reason and good sense. Well, the most prominent command in the whole Scriptures—in fact, the first of the ten commandments—enjoins us to turn our thoughts to the great Creator of the universe. A keen critical lawyer gave it very glibly when Jesus turned it back on himself, and asked him how he read the Scriptures. He said, "Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind, and thy neighbor as thyself." Now, we all recognize the God of the universe, even if we do not all recognize him at the same time as God the Father. Reason and common sense also indicate *emphatically* that we owe something to the Author of all things. The Being who gave us life and reason and sense is surely entitled to some recognition, from the highest type of life that this world contains. There is a limited number of people, of course, who say in their heart, "There is no God." We can not afford to take time just now, to answer or even consider this class. The larger part of them have probably denied the existence of a God because they want to be stubborn and contrary, and we are not talking to stubborn and contrary people on the subject before us to-day. Now, following right along in the thought before us, we have God's command in the language of our text, "Remember the sabbath day, to keep it holy;" and right along with it we read, "Six days shalt thou labor and do all thy work." This is Bible, I know; but is it not sound common sense? The great Author of the universe demands comparatively little of us. We are free agents, and honored with a free will. It is our privilege to step upward toward heaven, or to rush downward to ruin. But with all this wonderful liberty God insists on and demands a few things; and he also asks us for a small part of our time. Six days are granted to us to do our work, and to do almost as we please. The seventh only is set apart for the consideration of our Creator. If the whole plan of the world and humanity were submitted to a reasonable being before the world was, and the Author of the universe should submit the question, who could say that it were any more than fair that man be asked to give one day in seven for the consideration of something besides *selfish* matters? The next step would be for humanity to ask of God, "What, then, shall we do, or how shall we make use of this one day in seven?" And herein comes our text—"keep it *holy*." What does "holy" mean? I have submitted the question to a great many young people, frequently in the Sunday-school class, sometimes even to children. I do not know how it comes about; but there seems to be a general understanding, and a pretty general *agreement* in regard to this word "holy." Very likely only a few men can define the word "holy" in plain words; but almost any urchin of a dozen years, sometimes only half that, will tell you what is *not* holy. When I ask what the word means, very often I get no reply at all. If I change my manner, however, and say something like this, "Boys, do you believe you are remembering the sabbath day to keep it holy when you go fishing on that day?" the reply comes, prompt and ready:

"No, sir; going fishing is not being holy."

"Well, if you go out buggy-riding Sunday, is that remembering the sabbath day, to keep it holy?"

The responses are nearly as clear and decided in this case; and by asking a variety of questions we can gather pretty nearly just what each one thinks God meant when he gave us the command. The whole world recognizes it. In discussing the matter with a lawyer who was sent to us by our new railroad to see whether they could have permission to pass through the new curve on our grounds with an excursion train on *Sunday*, I propounded the question to *him*. Although he was a church-member, he defended the excursions on the ground that it gives fresh air to folks shut up in cities. When I asked him if he thought Sunday excursions were strictly in keeping with the command to keep the day *holy*, he frankly admitted that it was not, but plead that it was the *lesser* of two evils. Of course, they make great promises in their handbills and posters, that order and sobriety shall rule. In fact, a man was selected for one of the Sunday excursions, for the special purpose of going along to see that every thing that was done was strictly in keeping with the sacredness of the day. Do you smile? Well, I smiled a little, and I wondered where this *good* man would be found, who would consent to act in such a capacity. The demand was for a man something like this: Some good faithful Christian—no, no, not *Christian*, but some one who would go on a railroad train with a band of *excursionists* to keep them decent and in order. How did it turn out? Why, as you might expect. This blind leader of the blind, before the day was half spent, needed a guardian *more*, perhaps, than any of those he was sent to guard!

We are now ready to consider why it is that Sunday seems to be an *unlucky* day for business or recreation. For successful enterprises of any kind we want *good* men. A good man can not be found who will undertake business or enterprises for pleasure on Sunday. We may sometimes meet with pretty fair men who have no regard for Sunday; but, no matter what a man *believes*, he must certainly be uncivil and ungentlemanly, to say nothing of being irreverent toward God, who will deliberately set aside the time-honored custom of keeping Sunday as a day of rest. I have tried it myself. At one time in my life I argued that Sunday was no better nor worse a day than any other. I had a lot of bees located in a swamp, perhaps ten miles from home. Well, one Sunday I decided to look after my bees, as I hadn't time week days. In going to this out-apiary in the morning, I met strings of people going to church. The sight of them was a rebuke to me that I shall never forget. In going back home I met the same people returning from church. I noticed the peaceful, quiet look on their faces, which springs from a happy consciousness of having done one's duty, and of having obeyed God's holy command. While riding along I promised God mentally that, if he would forgive the disobedience of that one day I would try to take care that the offense should never be repeated again. It was my first prayer, or perhaps the first sentiment in my heart approaching a prayer, that I had felt for many a long year. Now, if you undertake any sort of business enterprise on Sunday, you are of necessity obliged to choose from a class of people more or less devoid of conscience. They do not hesitate to rob God, and, as a rule, they would not, of course, hesitate to rob *you*. Is it to be wondered at? Our railroad companies have had so much experience of just that kind, that many of them have decided they want nothing more to do with Sunday excursions. Suppose, however, you decide to do some work for yourself—you won't ask anybody to help you at all. The offense shall be yours and yours only. Why should it turn out differently from any other day? Because, my friend, in deciding on this step you have violated the instincts of your own conscience; and no man is prepared to do his *level best* when he is in a disturbed state of mind. Very likely there are those who have set aside the sabbath for so many years that their conscience is hardened, and they feel no qualms of conscience in boldly breaking away from public opinion and from the laws of God. But even if this be *so*, such persons are not the successful ones. They may be successful in making *money*, perhaps; but the present age does not recognize a man simply because he has money or because he controls property. In fact, it is getting to be rather the other way. The world *honors* the man who is helpful to his fellow-man, who is honest toward his neighbors and toward his God. I can remember that, in my childhood days, when I disobeyed my parents, or when I did something on Sunday I knew I ought not to do, I did it with a certain nervous and excited feeling that unfitted me for using my ordinary caution and good sense, therefore trouble came; and for the same reason trouble will come to you, dear friend, when *you* set aside and ignore God's holy command at the head of this talk. "The wicked flee when no man pursueth." Of course, they do.

I do not know how many editors read these pages. Well, the editors of this land have very much to do with the morals of our land. They preach to audiences much larger than are reached in pulpits. They reach *mixed* audiences, and they too often preach *evil* as well as good. Dear brother, if you have been induced to give publicity to Sunday excursions, or to lend your influence in getting people to attend these excursions, dinners, or dances to be held on Sunday, please believe me when I tell you that you are *losing* money by so doing, instead of gaining. Do the boys of our land need any urging in the way of Sunday excursions or bicycle excursions, on God's holy day? The road that leads to ruin is *downward*. People go almost themselves, just as a ball goes down hill. The narrow path that leads to eternal life and glory is not only straight and narrow, but it is constantly *up hill*. Even grown men and women are in danger of fainting by the way. Is it to be wondered at, then, that young people without any very fixed ideas in regard to morals or godliness get weary, and perhaps reckless? Think for a moment of exhorting them on the *downward* way. Well, an exhortation to a *poorer* or more *feeble* observance of Sunday is *certainly* on the downward course. I think that none can deny it, no matter what may be their belief, providing, of course, they recognize God as the Creator. Some may ask, "Brother Root, do you not think there is such a thing as too much strictness and too literal an observance of God's commands or supposed commands?" A few times in life I have met with cases of that kind. As I write, however, just now I do not know that I recall one. When Jesus was on earth, a class whose religion consisted almost entirely of outward forms were going so far as to let their strict ideas prevent them from relieving suffering or want on that day, and Jesus reproved them. The present age is not much given to such folly. Where somebody is suffering, you will scarcely find a man, woman, or child who will hesitate a minute to spring to the relief of such a one because it is Sunday; and I think we as a people honor God for taking it for granted that he wishes us to use good common sense in solving all such difficulties.

When *shall* we have excursions? Why, on week days, of course, just as our forefathers did. I am sure there are very few industrial establishments whose proprietors would not much rather give their employes a holiday at some season of the year when business is comparatively dull, rather than to see them go on Sunday. In fact, Christian people are so mixed in and sprinkled through all classes of humanity, that it would be next to impossible to induce *all* the members of any factory to go on Sunday. Their *best* help would not be seen in such a crowd. Sometimes I have felt almost helpless when I see how Sunday excursions have been increasing. May the Lord be praised, some *other* things are increasing also. The Endeavor society I have frequently written about has now here in our United States more than a *million members*. The recent national convention at Minneapolis gave us a glimpse of their numbers and power; and they have already with success taken hold of this matter of Sunday amusements. Base-ball playing, and Sunday theaters, even in large cities, have been obliged to give way before them. They are live and wide awake, and are keen and fearless; and they are on hand *everywhere*, just as *sin* and *Satan* are on hand everywhere. May God's spirit continue to be with them, and bless the efforts they are just now making to induce all the world to—*remember the sabbath day, to keep it holy.*

Queen was received in good shape yesterday morning on a *four-days'* order—quite different from a queen-raiser in Mississippi I ordered from last fall. It took four *weeks* to get one, and then took the second letter to hurry him up. I. B. OLMSTEAD.

Charleston, Ill., June 29.

GLEANINGS, AND THE GOOD THINGS IN IT.

Having been in the printing business nearly twenty years, during which time I have read or reviewed a great number of various publications, I am free to say, that, after *thoroughly* digesting the last three volumes of GLEANINGS IN BEE CULTURE, I have found less chaff and more good things than in any other publication devoted to trades professions or otherwise. L. G. ENGLISH.

Marysville, O., June 22.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

All the law is fulfilled in one word, even in this: Thou shalt love thy neighbor as thyself. GAL. 5:14

MR. E. FRANCE, of Platteville, Wis., writes, "We have secured 30,000 lbs. of honey, some good and some poor."

THE West queen-cell protectors are a big success in our apiary. Nearly all the cells given to our colonies now are protected by them.

ALTHOUGH we have been trying hard, for some reason or other we can not make the bees accept the Doolittle cell-cups—at least not more than two or three out of a dozen. This is somewhat humiliating, as others are reporting success.

THE nameless bee-disease seems to have broken loose again. From the reports that are coming in, it seems to be starting up with unusual virulence in a great many localities, and some write that removing the queen does not bring about a cure. How is this, friends?

IN response to the call for criticisms and suggestions as to the various departments in GLEANINGS, the majority write in effect to "keep GLEANINGS as it is—it is all good." There has been no dissenting vote on any particular department. While all this is very encouraging, we shall endeavor to make improvements from time to time.

THOMAS G. NEWMAN & SON, of the *American Bee Journal*, have removed from their former location to larger and more commodious quarters at 199, 201, 203 East Randolph St., Chicago. This doubles their floor space, of which they now have over 10,000 square feet. They will now be found upon the third instead of the fifth floor. We congratulate our friends on the change.

DON'T hang on to your first honey with the expectation of getting higher prices. The sooner you can move off the first of your crop, providing there is no other in the market, the more you will be apt to get. Sell it in your own home market, or, at least, do not rush it off to the city. When the buyers around home are supplied, then look elsewhere. Indications point to a large honey crop this year—at least, in most localities.

THE Western Classification Committee, of which J. T. Ripley is chairman, calls foundation "bee-comb stuff," and then qualifies the words by calling it, in parenthesis, "artificial honey-comb." We have entered a protest, and hope all supply-dealers will do the same. We want our product named correctly. It is true, we need a term besides the word "foundation," for the general public; therefore on our freight-bills we call it "wax in sheets." That is just exactly what it is.

WE are greatly annoyed by many of our customers calling for imported queens of a bright yellow. We do not pretend to rear bright yellow bees or queens. We say in our price list, and have repeated through the journal many times, that the progeny of imported queens, as well as the queens themselves, are, as a rule, leather-colored. If you want bright yellow queens, don't order imported. Our select tested queens come the nearest, and yet we do not guarantee that even these shall produce the golden Italians.

We have just been advised of the successful mailing of a select tested queen from our office to Jamaica. She was sent in a large Benton cage, and was on the road 18 days. The customer says she arrived in excellent condition, and was successfully introduced. Score another one for the Benton cage.

One of our advertisers, Mr. A. A. Byard, West Chesterfield, N. H., writes: Take out my ad., as it is getting late in the season. It has *paid* for itself; and almost every one who sent for the goods mentioned GLEANINGS." As we have, in times gone by, given instances of unprofitable advertising in our columns, it may be admissible to give this as a sample of the other side. This is only one of several others we have received, of a similar import.

Now is the time to infuse new blood among your bees if you intend to do it at all. Untested queens are now the cheapest they will ever be in the year, and most apiaries are or very soon will be doing little or nothing in the way of getting stores. The time to requeen is during the month of August, when brood-rearing is not necessary, and, in a good many cases, undesirable. Look over our advertising columns, and order the queens you want.

As an illustration of the extent to which honey is now being used by bakers, we make the following extract from a private letter just received from the United States Baking Co., Mansfield, O.:

> *Mr. A. I. Root:*—We have been buying honey from Tutt, of St. Louis, a very fine article, at 5½ and 6 cts. per lb. We just bought from him yesterday 92 barrels at 5½ cts., said to be equal to the last lot we bought of him at 6 cts.; if so, it is a very good purchase. Yours respectfully,
>
> UNITED STATES BAKING CO.
> (Crawford-Taylor branch).
>
> Mansfield, O., July 29, 1891.

How do you like the new design on the front of the cover? This was ordered about a year ago, but we told our engravers to do their level best, without regard to time or cost. The representations of clover, and bees on the wing, are unusually accurate. You see the idea. The little gleaners are gathering the sweets from far and near. The goldenrods are also excellent, and the whole design represents a handful of clovers, goldenrods, and other bee-plants that have been gleaned on the way. The engravers seem to have held in mind distinctly the idea of a gleaner, or, better, a GLEANINGS IN BEE CULTURE, and it is no little gratification to us that they have succeeded in combining so well not only beauty but the eternal fitness of things.

PARAFFINE FOR CANDY-HOLES OF QUEEN CAGES.

We are just lining all the candy-holes of our Benton cages with paraffine. The idea of this is to prevent the candy, or moisture in the candy, from soaking into the end or grain of the wood, thus causing the candy to dry up and become hard. After the cages are filled with candy, the candy itself is covered with paraffine paper. All this seals the candy up practically air-tight, with the exception of the feed-hole; and the candy around this is kept fresh by the bees eating out their daily rations. The use of paraffine in this way in keeping the candy soft is old, but we believe there is something in it. Recently a customer returned the cage in which the queen had died. Upon examination we found that most of the honey had soaked into the wood, leaving the candy as hard as a brick. This and other returned cages has decided us in favor of paraffine lining. With an ordinary five-cent brush, and a little vat of melted paraffine, one person can paraffine about five hundred cages in half a day. We shall watch the results narrowly now for the next few weeks, and report later for the benefit of our readers.

THE OLD COMB-HONEY CANARD BROKE LOOSE AGAIN.

The old sensational falsehood about artificial comb honey is breaking loose again. To show how stale it is, we reproduce it.

> #### ARTIFICIAL HONEY.
>
> Artificial honey, which is much more common in the market than consumers know, is made of potato starch and oil of vitriol. Some rash optimists think that they are sure of getting the genuine product of bees and flowers by purchasing honey in the comb. They do not know that the exquisite white comb that pleases them is often made of paraffine wax.—*Herald of Health.*

That old twaddle about "potato starch" and "oil of vitriol," and "rash optimists," is more than stale. Our thousand dollars is open to any one who will prove that comb honey can be successfully manufactured of potato starch and oil of vitriol so that rash optimists or anybody else can not detect the difference. This offer was made some five years ago, and we see no use of recalling it, for nobody has ever yet written to us about it. The item has been appearing again in a number of local papers. It has probably got into the "boiler-plate" matter which is sold for so much a yard to country papers, and now it will go the rounds for a while. This appeared originally in the *Herald of Health* a number of years ago, and every once in a while it bobs up. Our subscribers can do more to get their local papers to refute it than we can, and we trust they will seize their opportunity without delay. We will furnish plenty of our reward cards to help substantiate your statements.

HOW TO CLARIFY BLACK AND DIRTY WAX WITH SULPHURIC ACID.

We have been experimenting for the past few days in rendering wax with sulphuric acid. Although we knew the Dadants and one or two others were using it with excellent results in clarifying old dark wax, somehow or other "we hadn't got around to it." For several months back we have been saving up our old inky pieces of wax, and, besides this, the scrapings from the floor, and other odd accumulations from broken bits of comb. This week we procured some sulphuric acid and proceeded to clarify first the dirty scrapings from the floor, putting them into a copper boiler holding about half a barrel. We first put in about two pails of water, and then about three ounces of sulphuric acid, and afterward the scrapings. We next let on steam, until the wax began to come to the top. We first dipped off the clear wax floating on the surface, and poured it through a cheese-cloth bag. We next scooped out the residue, including the dirt, dumped it into the cheese-cloth bag, put it into our wax-press, and squeezed it under a gentle and increasing pressure. The wax, as it oozed out, ran into the vat, which, upon cooling, proved to be nice yellow wax. On former occasions, the same treatment without sulphuric acid, would give us wax about as black as ink—or, at least, of a very dirty and muddy color. The action of the acid is to carbonize, or, in other words, burn the organic matter, and this frees the wax that is mingled with it, and allows it to separate and rise to the surface. We have repeated this operation with sulphuric acid on several lots of very dirty cakes of wax, many of them almost perfectly black; and each time we had, as a result, several nice yellow cakes of wax, and a small pile of black organic matter that had been freed by the acid. We followed the proportions given us by friend Salisbury in a recent article; viz., about a pound of commercial sulphuric acid to about a quarter of a barrel of water. Into this we introduced a steam-pipe, and then filled up the receptacle with the wax accumulations, or dark cakes of wax which we desired to lighten up. Sulphuric acid mixed in water in the proportions given will not make a solution strong enough to be corrosive to the hand, nor dangerous to the bees after it has been re-melted and worked over into foundation. We expect to render all our dark wax into nice yellow cakes, so that it may all be of good color and ready for use this fall, or for next season's trade.

HIGH PRICES FOR GARDEN PRODUCE, AND VICE VERSA.

AFTER reading the proof of what I have said in another column, about taking all we can get for the stuff we raise, I fear it did not convey just the meaning I wish. Let me give another side to it. I *may*, perhaps, have a thousand bushels of potatoes from less than three acres of my little ten-acre farm. At present we are getting 80 cents a bushel; but the prospect is that the price will go down very much. I might dig them in haste and market them in haste, and perhaps get a good deal of money for them. But it is not the money I am after. I am going to enjoy selling them at the market price. If they go down to 25 cents a bushel, I hope—yes, I believe—I shall enjoy just as much giving our customers great beautiful Puritan potatoes for 25 cents a bushel as I do now in getting 80 cents. Then why not dig them and sell them for 25 cents a bushel *now?* Because, dear friends, it would be doing a great wrong to a large class of people. I should break the price down prematurely, and justly incur the ill will of farmers and everybody else who have potatoes to sell. We inquire every day what potatoes are selling for at the groceries, so as to avoid breaking down prices. At the same time, we want to be prompt in coming down just as fast as *they* come down. I want to be fair, honorable, and just with all my neighbors, and I am happy in it, and enjoy doing it. The amount of money that comes into *my* pocket ought to be, and I hope is, a secondary consideration. I do especially enjoy seeing consumers get nice products at a low price —that is, when the crop generally is so large that a low price is the right and proper price. Now, then, hurrah for the big Puritans!

MY "POSY-GARDEN" THE FIRST OF AUGUST.

MAY be some of you have thought that I don't care for a *posy*-garden, but I tell you I do. It is just across the street from the office. It is part of that hotbed that is warmed by steam in winter. It was so conspicuous right on the street, you know, that it seemed too bad to have the beds vacant, even in summer. We were fixing the ground for strawberry-sets. It was made fine and mellow, and very rich, and then covered half an inch with lake sand smoothed down as level as a floor. This lake sand looked so pretty and clean that I told the boys we must have some flowers. Perhaps it was first suggested by the spider-plants that came up quite thickly. We were so careless as to let them get killed by the frost, however, two or three times, but now they are doing finely. But the flowers that please us so much are from the portulacas growing right in this white sand. The green foliage contrasts very prettily with the sand; and every forenoon the many-colored blossoms are to me startlingly beautiful. I gaze at the passersby, and look at the boys, and wonder how they can be unmoved by such entrancing beauty. Then another thing that makes portulacas attractive to *me* is, that the bees so delight in hovering about them, and crawling down into the blossoms before they are yet quite opened; and how they scramble to get out when they have rifled the blossom of its store of nectar! Then they dance about the expanded blossoms as if they *too* were enchanted by the brilliant hues. A great many times, when I admire beautiful flowers in the florists' windows, and hear the *prices*, it gives me a feeling of pain. I confess I do not greatly enjoy high-priced flowers, especially when they go away up into the dollars. Well, now, my portulaca - bed was the product of only a small part of a five-cent paper of mixed portulaca seeds. Why, if the whole wide world could see that bed, just as it looks to me now out of the window, it seems to me that such a bed would spring up straightway in front of almost every home. It is worth more than it costs, just to show the children, while you teach them and lead them to think of the great God over all, who planned and fashioned the flowers for no other purpose than to please his children *whom he loves.*

SPECIAL NOTICES.

EARLY-ORDER DISCOUNT.

We begin now to offer 5% discount on all goods of our manufacture found on pages 10 to 27 of our price list, ordered for use next season. This discount applies on all orders for such goods during the months of August, September, October, and November, when the discount is claimed.

BEESWAX DECLINING.

The market on beeswax shows a downward tendency, and there is always less demand at this time of year than in the spring. We will pay, till further notice, 26 cts., cash, 28 trade, for average wax delivered here. Our selling price will be 31 cts. for average, 35 for select yellow. We will make no change in price of comb foundation, because our early-order discount of 5 per cent begins this month, which more than compensates for the drop in wax.

CRATING COMB HONEY FOR SHIPMENT.

Comb honey in sections, put up in suitable shape for market, is put into light cases, usually called shipping cases, or crates. These vary in size from 12 to 48 lbs., and usually they have been sent to market without any further protection. This may do very well in full carloads, where it is not transferred; but it is not safe to ship such cases in less than carload lots without additional protection. Your honey will reach the market in so much better shape that it will pay you several times over for the extra care in preparing it for shipment. The plan of crating has been given once or twice, but it will bear repeating at this season when you are about to ship your honey to market.

Make a rough crate that will hold a pile of cases weighing 150 to 200 lbs. Let one piece on each side project at each end so as to form handles to carry it by. Make the bottom solid; and, before putting in the cases of honey, spread in two or three inches deep of straw or hay, to break the jar if the crate should be dropped. The crate should be made of such a size as to hold a certain number of cases snugly; and it should be covered over the top, and pretty well covered on the glassed sides, so the glass need not be broken. If your honey is in 24-lb. cases, put either two or three piles three cases high in a crate, and double the number of 12-lb. cases can be put into the same-sized crates. If any prefer to buy crates rather than make them, we will furnish them in flat, right size for nine 24 lb. cases, or eighteen 12-lb. cases, at 50c each; $4.00 for 10.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Simplicity hives, and L. frames, filled with combs, nearly all worker, for bees, any breed, or Barnes foot power saw.
11tfdb L. W. NASH, West Kennebunk, York Co., Me.

WANTED To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To exchange pure Scotch collie pups for tested Italian queens. 12tfdb
N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange a 10-inch Pelham fdn. mill, a Wilson No. 1 bone and feed mill, bees, honey, and supplies, for a small printing-press, shotgun, wax, or offers. Send for price list to 12tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

WANTED. To exchange Golden Italians or Carniolan queens, for nice straight worker combs in L. frames, or pure-bred poultry. J. A. ROE,
14tftb Union City, Ind.

WANTED.—A man to take charge of my bees.
14-15d J. S. COOPER, Quebeck, Tenn.

WANTED.—Exchange with the "Home," St. Petersburg, Fla., and get our "mailing lists" free. 9tfd

WANTED.—Two pairs tame fox squirrels. Will pay cash or exchange colony pure Italian bees.
CHAS. MCCLAVE, New London, Ohio.

WANTED.—To exchange select tested queens for potatoes of northern production
15-16d L. C. CALVERT, Poplar Flat, Ky.

WANTED.—An oil-tank, coffee-mill, scales, candy and spice cans, show-case, and combination safe.
A. C. FASSETT, Watson, Allegan Co., Mich.

WANTED.—All the names of persons running apple-driers. Will pay liberally for same.
W. D. SOPER & CO., Box Makers,
15-18db Jackson, Mich.

WINTER cases in flat, or made up, for dovetailed hive, or supplies of all kinds, and bees and queens, in exchange for either comb or extracted honey. 1[illegible]tfdb
HILL M'F'G CO., Dennison, Ohio. Box 120.

WANTED.—Situation and good home in small family of an experienced bee-keeper in any State, by a woman. Am willing to help with house or bee work. Address with references,
P. O. Box 35, Roseville, Warren Co., Ill.

WANTED.—To exchange new Odell type-writers for comb or extracted honey. Write for illustrations and samples of work. Valued at $15.00.
GEO. E. HILTON, Fremont, Mich.

WANTED.—A few of the American bee-keepers to send me a sample of their best strains of Italian or Carniolan queens. I will pay postage in any case, and postage and 1½ times regular cost of queen if she comes through alive. See GLEANINGS, last Jan., page 72, for Mr. Root's instructions as to mailing.
ÆNEAS WALKER, Redland Bay,
15-16d Via Frisco. Queensland, Australia.

WANTED.—To exchange 90 colonies Italian bees, in 2-story 8-frame L. hives, for Safety bicycle, lumber, horses, buggy, honey, or machinery for box making. L. J. TRIPP, Jackson, Mich.
14tfdb With W. D. Soper & Co.

On Their Own Merits.

I am making a specialty of breeding **Golden and Albino Italian Queens.** My **five-banded bees** are equal to any as honey-gatherers, and they are the most beautiful and gentlest bees known. Warranted queens, May, $1.25; six for $6; after June 1, $1; six for $5. Satisfaction guaranteed. I have a few 3-banded tested queens at $1 each.

CHARLES D. DUVALL,
9tfdb **Spencerville, Montg'y Co., Md.**
Please mention this paper

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices stating quantity wanted. **ECKERMANN & WILL,**
Bleachers, Refiners, and Importers of Beeswax,
5-16db **Syracuse, N. Y.**
☞In responding to this advertisement mention GLEANINGS.

WE WILL BUY YOUR OLD COMBS.

F. A. SALISBURY, SYRACUSE, N. Y.
Please mention this paper. 14tfdb

Tested Italian Queens.

By return mail, $1.00 each. Hybrids, 20c; 6 for $1.
J. A. GREEN, Dayton, Illinois.
Please mention this paper. 12tfdb

FIVE-BANDED GOLDEN RED-CLOVER BEES.

If you want bees that will work on red clover, try one of our 5-banded queens. Queens in August, untested, 75 cts.; ½ doz., $3.60; tested, $1.50; select, $2.00; the very best, $4.00. Descriptive circular free. ***LEININGER BROS.,***
10tfdb ***FT. JENNINGS, OHIO.***

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-ftdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
In writing advertisers please mention this paper.

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.
☞ Please mention GLEANINGS.

ITALIAN QUEENS.

If you want queens that are bred for business, send to me. See adv t in GLEANINGS of June 15th. Every queen warranted in every respect. Price 75 cents each.

JAMES WOOD,
11tfdb **NO. PRESCOTT, MASS.**

Please mention this paper.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.
The oldest, largest and cheapest Weekly bee-paper
THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

Please mention this paper.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees Sample copy of our Bee Journal, **"The Western Bee-Keeper."** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

3tfdb

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~~~MUTH'S~~~

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-Hives
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Please mention this paper.

THE PECOS VALLEY
THE FRUIT BELT OF NEW MEXICO

Over 100 miles of irrigating canals now completed, each from 18 to 60 feet wide and carrying 5 to 7 feet of water.

Over 300,000 acres of the richest lands in the world already available for irrigation and farming under these canals, twenty-five per cent. of which are still subject to entry under the homestead laws.

Other lands for sale at $15 to $30 an acre and on easy terms.

The Pecos River being fed by **never failing springs** of immense size, the water supply for all the canals can carry is assured.

Climatic and soil conditions here are superior to those of Southern California. All the fruits grown there can be produced here, except oranges and lemons, while the Pecos Valley grows all the cereals, vegetables and grasses that can be grown anywhere on this continent, while the neighboring mines afford a home market for all products.

Our farmers raise two crops a year of grain and vegetables, five crops of hay, and stock grazes out doors all winter. Our climate is a perfect antidote for consumption and all throat and lung diseases.

Send for maps and illustrated pamphlets, giving full particulars.

PECOS IRRIGATION & IMPROVEMENT CO.,
EDDY NEW MEXICO.

☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIAN HONEY QUEENS

A combination of best honey-gatherers. Bred in America. Try one. Each, $1.00; six for $5.00.

THE MISSOURI BEE-KEEPER.

A monthly journal devoted to practical bee-keeping; 50c a year. Above journal one year and one queen, $1.15. Sample copy free. Address

15-16d **E. F. QUIGLEY, UNIONVILLE, MO.**

☞In responding to this advertisement mention GLEANINGS.

FOR ALBINO AND GOLDEN ITALIAN QUEENS, SEND TO A. L. KILDOW, SHEFFIELD, ILL.

1 untested Albino, $1; 6 for $5.
1 tested Albino, June and July, $1.75; August and September, $1.50.
1 select-tested Albino, Aug. and Sept., $2.50.
1 untested Italian, June, $1; July to Sept., 75 cts.
1 tested Italian, June and July, $1.50; August and September, $1.25.
1 select-tested Italian, June, $2.50; after June, $2.
For particulars, send for descriptive catalogue.

In responding to this advertisement mention GLEANINGS.

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
21tfdb **New Philadelphia, O.**

In writing to advertisers please mention this paper.

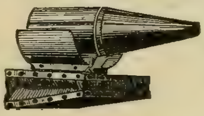
TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

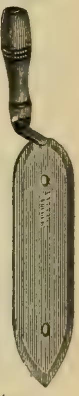
PAGE & KEITH,
14tfdb New London, Wis.

In writing advertisers please mention this paper.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror	3	"	"	... 1.75
Large	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1 00
Little Wonder,	1¾	"	"	... 65
Uncapping Knife.....			......	..... 1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

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STRAWBERRY GROWING

A CERTAINTY AND A PLEASURE

By growing the ENHANCE, a new and well-tested sort, succeeds everywhere. Most reliable, most productive, largest shipping and all-purpose berry extant. Send for description and price.
16-17d **Henry Young, Ada, Ohio.**
Please mention this paper.

TESTED ITALIAN QUEENS, 75 CTS., HYBRIDS, 25 CTS.

I re-queen my yard every year. None of the queens older than one year. T. H. KLOER,
16tfdb 425 Willow St., Terre Haute, Ind.

For Sale.

A NICE SOUTHERN HOME OF 57½ ACRES,

Within one mile of churches, schools, and railroad. Healthy location, well adapted to small fruits, splendid for dairy, and unsurpassed for potatoes, as two crops can be raised here in one season. Good markets north and south of here. If not sold privately I will sell for cash in parts and as a whole on first Monday of October next.
JACOB BUCHI, Franklin, Tenn.
Please mention Gleanings.

NO MORE QUEENS THIS SEASON, or after this journal reaches you.
Jennie Atchley, Farmersville, Tex.

QUEENS! QUEENS!

For the rest of the season (till Oct. 1) I will sell at a discount of 20 per cent on prices given in June 15th Gleanings. For further particulars address
W. J. JOHNSON, ACKERMANVILLE, NORTHAMPTON CO. PA.
(Satisfaction and safe arrival guaranteed.)

DON'T you want to improve your stock? Don't you want nice large business Italians that will just "*roll in the honey*"? Seven years careful breeding from the best stock obtainable; 650 queens sold, and never heard of but one mismated. Queens large, yellow, and prolific. Warranted, 75c: 3 for $2.00; or a select breeder, $1.50. Your orders appreciated. Return mail. 16tfdb.
W. H. LAWS, LAVACA, ARKANSAS.
☞In responding to this advertisement mention Gleanings.

50 TESTED QUEENS, 75c. Young Italians guaranteed in every particular. Sample 5-banded bees, 2c. 16 F. C. Morrow, Wallaceburg, Ark.

FOR SALE.

One 40-horse-power steam engine and locomotive, or fire-box boiler, in good order. Price $500 on cars here. 16-17-18d
T. A. POTTS, Martinsburg, W. Va.

FOR SALE. 20 colonies Italian bees at $5.00 each. Simplicity hive, eight brood-frames, one broad frame filled with sections. Plenty of honey.
16-17-18d Franklin Thorn, Paterson, N. J.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. Scoven,
12tfdb Kokomo, Ind.

WANTED.—To exchange pure Scotch collie pups for tested Italian queens. 12tfdb
N. A. Knapp, Rochester, Lorain Co., O.

WANTED.—A man to take charge of my bees.
14-15d J. S. Cooper, Quebeck, Tenn.

WANTED.—To exchange select tested Italian queens for potatoes of northern production.
15-16d L. C. Calvert, Poplar Flat, Ky.

WANTED.—All the names of persons running apple-driers. Will pay liberally for same.
W. D. Soper & Co., Box Makers,
15-18db Jackson, Mich.

WINTER cases in flat, or made up, for dovetailed hive, or supplies of all kinds, and bees and queens, in exchange for either comb or extracted honey. 15tfdb
Hill M'f'g Co., Dennison, Ohio. Box 120.

WANTED.—Situation and good home in small family of an experienced bee-keeper in any State, by a woman. Am willing to help with house or bee work. Address with references,
P. O. Box 535, Roseville, Warren Co., Ill.

WANTED.—To exchange new Odell type-writers for comb or extracted honey. Write for illustrations and samples of work. Valued at $15.00.
Geo. E. Hilton, Fremont, Mich.

WANTED.—A few of the American bee-keepers to send me a sample of their best strains of Italian or Carniolan queens. I will pay postage in any case, and postage and 1½ times regular cost of queen if she comes through alive. See Gleanings, last Jan., page 72, for Mr. Root's instructions as to mailing.
Æneas Walker, Redland Bay,
15-16d Via Frisco. Queensland, Australia.

WANTED.—To rent an apiary of one or two hundred colonies. Southern States preferred.
H. Fitz Hart, Avery P. O., La.

WANTED.—To exchange a foot-power saw, almost new, and a printing-press, 4½x7½, also a press 7x11, for honey. A. D. Ellingwood,
16 17d Berlin Falls, N. H.

WANTED.—A situation with a bee-keeper in the west or southwest, by a young man with four years' experience. Address
J. M. Worthen, Warsaw, Ills.

WANTED—To correspond with Swedes and Hollanders to work in fruit orchard and gardening. 16d J. B. Murray, Ada, O.

WANTED—To exchange Bubach and Gandy strawberry plants for Italian queens, plants at rate of $1.00 per 100 in exchange. 16d
David Lucas, Jewett, Harrison Co., O.

MUSICAL
INSTRUMENTS
MURRAY & HEISS
CLEVELAND OHIO.
SEND FOR CATALOGUE.
1-tfdb
Please mention this paper.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Owing to the lower prices for all sweets this year, and the generally full crop of honey, it is probable that a low range of values will rule for the latter. We do not wish, however to depress the market by making low offers, and have therefore decided to receive and sell on commission for our friends who wish to ship to us, pledging to them the highest wholesale market price, and reserving the right to purchase at this price what we require for our distributive trade. The only lot sold in this market so far this year has been a lot of 45 cases, N. Y. State fancy white, 1-lb., unglassed, light weights, which sold at 16 cents.

We will advance two-thirds of the market value on receipt of the goods. The market to-day for California extracted honey is 7½ in carload lots. Jobbing price, 7⅜. Southern goods are arriving in quite large quantities, and selling from 68@74, according to quality. *Beeswax*, slow at 26.

Aug. 10. THURBER, WHYLAND COMPANY,
New York.

NEW YORK.—*Honey.*—Extracted in good supply; have already had 6 carloads from California. Demand rather limited. We quote: California 6⅔@7¼. Orange-bloom, 7@7½. Southern, common, 65@70 per gallon; choice, 70@75. Basswood, 7@7½. As to comb honey, is is a little too early to say exactly what it will sell for in the jobbing way. We do not wish to mislead our shippers by quoting higher prices than we can realize. For the September issue we will give full prices. *Beeswax* dull, and dragging at from 20@27.

Aug. 11. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

BOSTON.—*Honey.*—New honey is coming on the market from Vermont, and is certainly as fine as we have ever seen. It is starting in at from 15@16, and selling fairly well considering the extremely hot weather. We think it is a mistake to market new honey before Sept. 1; but as others are sending in their honey to this market, we, of course, have to have a little to keep along with the demand. Extracted, 6@9. *Beeswax*, none on hand.

Aug. 10. BLAKE & RIPLEY,
Boston, Mass.

ALBANY.—*Honey.*—We have received 158 cases of comb honey up to date. Last season we received none before September, showing that the crop is a month earlier this year. The quality is only fair, some stock being badly discolored. We have made sales at 15@18 for clover. No buckwheat received yet. From present indications we think the crop will be quite large. Not much demand for extracted. CHARLES MCCULLOCH & CO.,

Aug. 8. Albany, N. Y.

ALBANY.—*Honey.*—Market not fairly opened yet, but some good sales have been made at: White clover or basswood, comb, 15@18; mixed ditto, comb, 13@15; dark, ditto, 12@13. Extracted, light, 8@8½; light southern, 6@7. Honey demand will improve as soon as berries and peaches are out of the way, although prices will not change much. *Beeswax*, not so firm, 27@28. H. R. WRIGHT,

Aug. 8. Albany, N. Y.

MILWAUKEE.—*Honey.*—Demand fair for the season; later will improve. Supply of honey is enough for all wants now, but think we can take care of all that comes. We quote choice white 1-lb. sections in nice cases, 16@17; good to choice, nice cases, 15@16; dark or common quality, 10@14; extracted, white, in barrels or kegs, 7@7½; dark, in barrels or kegs, 5½@6½. *Beeswax* nominal, 2 @25.

Aug. 5. A. V. BISHOP,
Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is a fair demand for choice new comb honey, with a good supply at 14@16c a lb. for best in the jobbing way. Demand is fair for extracted honey, with a supply in excess of the demand. It brings 5@8c a lb. on arrival. Demand is good for beeswax at 23@25c a lb. for good to choice yellow on arrival.

Cincinnati, O., Aug. 8. CHAS. F. MUTH & SON.

NEW YORK.—*Honey.*—Demand still rather limited, with large supplies of extracted and very little comb honey. We quote: White comb, 14@15; extracted, common southern, 65@70; good to choice, 70@75; mangrove and palmetto, 7@7½; California, 7@7¼. *Beeswax.*—Supply increasing, with very little demand at 25@26. F. G. STROHMEYER,

Aug. 11. New York.

CHICAGO.—*Honey.*—The market is in a sluggish condition at present, weather being hot, and the quality of comb offered is not of high grade. The best lots bring 15@16, and extracted 6@8, with sales chiefly at 7, for white grades. The call for it is fair. *Beeswax*, 28. R. A. BURNETT,

Aug. 11. Chicago, Ill.

NEW YORK.—*Honey.*—New comb honey arriving in small quantities. Demand very light. We quote: 1-lb., 16@20c, as to quality and style of package. Extracted, in good demand at 6@8c. *Beeswax* in fair demand at 28@31c for choice yellow.

July 16. F. I. SAGE & SON,
183 Reade St., N. Y.

ST. LOUIS.—*Honey.*—There is very little of change to report. Comb in good supply, but light demand at 10@13c according to quality. Strained and extracted at 5½c in barrels, 7c in cans. We consummated a few days since the largest sale of the season—40,000 lbs. extracted to one party at 5½c.

D. G. TUTT GROCER CO.,
Aug. 8. St. Louis, Mo.

COLUMBUS.—*Honey.*—White-clover honey scarce and wanted. Selling at 16c for choice white. Home crop not amounting to any thing.

EARLE CLICKENGER,
Aug. 8. 121 S. 4th St., Columbus, O.

DETROIT.—*Honey.*—Comb honey is in light demand, and selling at 13@14. Extracted, 7@8.

Beeswax, easy at 26@27. M. H. HUNT,
Aug. 10. Bell Branch, Mich.

WANTED.—Comb and extracted honey. Address
H. G. CAMP, Winona, Ohio.

60-lb. cans linn honey, 8c; dark, honey dew, 5c. In sections, linn, 15c; dark, 8c.

OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

FOR SALE.—2000 lbs. well-ripened linden extracted honey, in iron-jacket cans, 7c per lb., f. o. b.

MRS. N. M. OLSEN, Nashotah Mission, Wis.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

Honey, Beeswax, Etc.

We are now in position to receive honey and beeswax on consignments, and to obtain best market prices for comb and extracted honey. Last year we could have disposed of as much again honey as we received, and our outlet this year will be still better. Correspondence solicited.

CHAS. ISRAEL & BRO.,
110 HUDSON ST., N. Y.

Dealers and Commission Merchants in Honey, Beeswax, Maple Syrup, Sugar, etc. 16tfdb

Please mention this paper.

ITALIAN QUEENS FOR SALE.

July and August, tested, $1.00; untested, 75 cts. Bees at $1.00 per lb. Make money order payable at Waynesburg, Greene Co., Pa.

9-16db **MRS. A. A. SIMPSON, Swarts, Pa.**

Please mention this paper.

YELLOWEST ITALIANS.

My bees are the brightest and gentlest bees, and for honey-gatherers are equal to any. Send 5 cts. for sample and be convinced. One queen by mail, 75c.

25 tested Italian queens one year old, 75c each. These are fine ones, so don't miss this chance. Untested queens, August and September, 75c.

J. F. MICHAEL, German, Darke Co., Ohio.

Please mention this paper. 11-17db

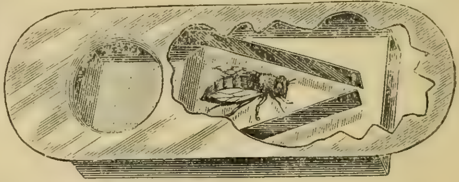
ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. W. Z. HUTCHINSON, Flint, Michigan.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb ***R. & E. C. PORTER, LEWISTOWN, ILL.***



In responding to this advertisement mention GLEANINGS

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES. —Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS 6-4d

A glimpse of our Factory, now making carloads of **Dovetailed** Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices**. Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention GLEANINGS.

PASTEBOARD BOXES.

CRAWFORD'S SECTION CARTONS ARE JUST WHAT YOU WANT.

SEND FOR NEW PRICE LIST.

A. O. CRAWFORD,

11tfdb *SOUTH WEYMOUTH, MASS.*

☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIAN QUEENS.

Our 5-banded Italians are giving perfect satisfaction; gentle, excellent workers, non-robbers, and the most beautiful bees in existence. Won first premium at Illinois State Fair in 1890. The judge said, "The drones are the yellowest I ever saw." Queens warranted purely mated; and replaced if they produce hybrid bees. One warranted queen, $1.00; six for $5.00; tested, July, $1.75; after, $1.50; selected tested, $3.00; breeders, the best, $5.00. No foul brood. Safe arrival and satisfaction guaranteed. Reference, our P. M. S. F. & I. TREGO, Swedona, Ills.

Please mention this paper. 1tfdb

Bee-Hives, Sections, Etc.

BEST GOODS at LOWEST PRICES.

We make 15,000 sections per hour. Can fill orders promptly. Write for free, illustrated catalogue.

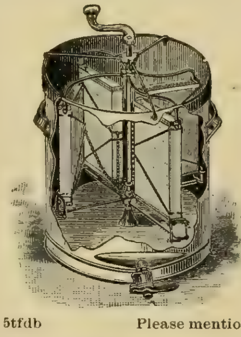
G. B. LEWIS CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

16 SWARMS OF GOLDEN ITALIAN BEES FOR SALE at $3 per colony; all on wired L. frames, built from foundation in chaff hives.

15-16-17d *T. S. THOMPSON,*

Box 240. Blairsville, Indiana Co., Pa.



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

Published Semi-monthly at $1.00 per year, by A. I. Root, Medina, O.

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STRAY STRAWS

FROM DR. C. C. MILLER.

Does melilot produce pollen? I have not seen bees gathering pollen from it.

Dry cedar bark, cut short and pounded fine, is the favorite smoker fuel of the *C. B. J.*

"Absence of occupation is not rest;
A mind quite vacant is a mind distrest."

"Bees swarm," says Miles Long, "because it's s'warm. That's how the bees be-hive in Canada."

Wedging up sections in a T super after E. R. Root's plan works very satisfactorily with me so far as I have tried it.

The Porter escape is a big success. Put one under a finished super to-day, and to-morrow the super is ready to carry into the honey-room.

The *Western Bee-keeper* gets rid of laying workers by placing the whole colony over another containing a laying queen, and extracts later. A good way too.

Gasoline is a good thing—makes a better fire than wood to cook by if you don't want your wife roasted, and is a grand thing to use for moths and bedbugs.

Twelve sections in each super is what I am using now, Aug. 1, putting back the unfinished sections in hopes of getting them sealed, in spite of the bees working so slowly.

J. A. Green has a rose-bush with 12 kinds of roses budded on it. I suspect that a good many bee-keepers are great lovers of flowers. It's a pleasure that leaves no bad taste in the mouth.

I commenced the season with 236 colonies; and if I had it to do over again the number would be 36 less. I'd rather have less honey, and have enough time to sleep, and look at my roses.

Queens of second swarms, according to H. Spuhler, in *Revue Internationale*, are better than the queen left in the old hive, mainly because there is a choice of several queens in the second swarm.

July 20, bees commenced robbing, and storing let up, although clover bloom was abundant, and plenty of young blossoms coming on. Some of the time, however, honey shook out of the combs. It's a mixed mess.

On page 589 Rambler goes even beyond Prof. Cook's teaching, using "we" and "I" and "he" with such rapid changes that it makes one dizzy, changing nine times in the course of his article. Prof. Cook has much to answer for.

A sure sign of swarming, says *C. B. J.*, is the back and forward movement of the bees on the front of the hive and alighting-board, sometimes called "raking." "After they commence doing that they are almost sure to swarm the same day, and will very seldom, if weather is favorable, wait till the next."

Laying workers have been very easily cured in the few cases I have tried, by simply dropping into the hive a young queen just hatched, and I have generally pulled the young queen out of the cell without waiting for her to hatch. But further trial is needed to see if it will always work. Will others try it and report results?

Crimson or scarlet clover has a good report for West Virginia from R. A. Little, in *National Stockman*. He says, "I have tried a number of different grass and foliage plants the last few years, and am better pleased with the crimson clover than any thing else. . . . . . It is a beautiful sight when in full bloom, and I never saw so many bees on one acre of ground."

Top-bars, reinforced with strips of separator ⅛ of an inch wide, have worked just as well, this season, as slat honey-boards. But then I had them in only one hive, and the bees of that hive may have had something to do with it. The top-bars were ⅞ wide, and most of my top-bars are one inch wide. I wonder whether it will do to make them 1⅛ wide with the separator, or would it do to use strips of tin?

For out-apiaries I know of nothing to come up to the little mosquito-tents in the way of bee-escapes. Where desirable to leave on over night, the Porter escape is better; but if you want to rush the thing through the same day, smoke the bees out pretty well before taking off, pile 15 or less in a pile, and then put on a tent. In that way we took off and brought home 75 supers from the Wilson apiary July 21.

Virgin queens may yet become a proper article of commerce. I received two virgin Punic queens from "A Hallamshire Bee-keeper," England; and although they were ten days in the mail on the way, by following his instructions they were safely introduced. Think of it! A virgin queen crossing the ocean and a good part of the American continent, knocked about in the mails till ten days old or older, and then safely introduced!

A satisfactory bee-brush is yet to be invented. I can make a good brush, but it is good for only a day. Tie together a good lot of mayweed, goldenrod, sweet clover, timothy, or some other plant 18 to 24 inches long. Let the tops of the plants be all laid together, so it is big at the brush end, and use enough so that it is all that can be comfortably handled at the butt end. While it lasts it is perfection, taking a whole side of a frame at one sweep. To be good, a brush must be *big*.

I HAVE RECEIVED a sample of the Punic bees. They don't look as I expected. Black! I should say they were black. I never saw black bees before. The common bee is brown beside them. Of course, one can judge nothing of their value by their looks. Such great things are claimed for them that the story looks a good bit fishy. But we must not judge hastily. So far, I only know that they are distinct in looks.

HONEY-PLANTS.

FRIEND HEDDON GIVES US SOME SUGGESTIONS.

By the above heading I have reference to such honey-plants as we bee-keepers have from time to time planted with our own hands. I need not tell you, Mr. Editor, that I am somewhat outspoken, and quite apt to express bluntly any honest opinion which is pressing hard; but one of the times when I was astonished, but did not say much—not a half nor a fourth what I felt like saying—was when the commission of bee-keepers trapsed off down to Bro. Chapman's, in New York, to investigate a honey-plant which had no reasonable backing; but, on the other hand, all that had been written and said about it indicated that it could never be a success, if for no other reason, for the fact that it couldn't stand alone after being started, but must be watched and tinkered all the time to keep it even with grass and weeds. For the average bee-keeper I have no faith in the use of good land specially for raising honey-plants; but for the case of gathering seeds and scattering them in waste places, I have great faith. If the Chapman honey-plant is in no way noxious, yet, when once started, will assert supremacy over grasses and weeds, at the same time readily yielding to the plow, and is a good honey-yielder, bearing at a time when the general yield is not on, then it would be worthy of the inspection of a commission; but there were to me no such evidences. Well, I see that you are now satisfied that the Chapman honey-plant was never in the race.

I have tried many kinds of honey-plants, among them the Simpson and spider; but from two only have I received any profit; and those are sweet clover and pleurisy. Both are tenacious, good yielders, both yielding at a time when we used to suffer a complete dearth; both increasing about my apiaries so rapidly that, at this moment, the colonies in each apiary are gradually storing surplus, instead of robbing and stinging. The result is profit and pleasure combined. The sweet clover spreads and increases faster than the pleurisy; but the latter is the best honey-yielder—yes, the most copious yielder of nectar of any blossom we have, basswood not excepted. It is now yielding abundantly; and I only wish that commission were here to see the bees go for the nectar plainly to be seen in every petal. So far as I can discover, this plant has not a fault; and one point greatly in its favor is, that it is a perennial.

No doubt yourself and many of your readers remember about the splendid reports from the epilobium, or great willow-herb (some called it purple fireweed), which came in from northern latitudes a few years ago. One brother near Duluth, Minn., reported an enormous yield from this plant alone—something like an average of 100 pounds of comb honey per colony. I have made three trips to the northern part of this State, and each time watched this splendid honey-plant carefully. As stated in Gray's Botany, I saw no specimens south of 43 to 44° north latitude. Now, what do you think?—a clap of thunder from a clear sky. Some two weeks ago, while riding with a party of friends to a summer resort ten miles north of this place, I saw, by the roadside, as many as a dozen plants of the genuine epilobium, and no mistake. I stopped the procession and went to the spot and picked some heads to make sure, and brought some home just in time to show them to "Rambler," whom I found in my office at the time. A few days later I found another and larger patch, six miles east of the former one, and so I now believe we are to enjoy the blessings from this plant, here in latitude 42°. We must not forget that our bees are the main factor in the sure increase of any new honey-plant. It may be that these plants are a little fitter to survive this climate than their cousins of the North. I shall gather a lot of the seeds of these more southerly specimens of the epilobium, and plant a lot in my garden. I shall have to drive 21 miles several times to get the seeds from both patches; for, while the lowest pods are seeding, the middle is in blossom and the top in bud yet. If I succeed in "running in" this plant as I have the pleurisy and sweet clover, I shall have a continuous surplus honey-flow, all of nearly one magnitude, from the opening of white clover to the closing of goldenrod, the weather being equally favorable, and that, too, without the use of a foot of land fit for any other purpose, and without making any noise about it to incite my neighbors to the unprofitable attempt of raising honey in an already occupied field. JAMES HEDDON.

Dowagiac, Mich., Aug. 1.

[Friend H., the only objection to what you propose, that I know of, is the complaint that has often been made, that we bee-keepers are scattering weeds along the fences and roadsides, that may increase so as to be a pest to the farmers. In our locality there is not very much waste ground. It is getting to be fenced and occupied for something, if not more than pasture; and our plowed and cultivated fields are quite generally dispensing with fences, so the crops come clear up to the road. The purple fireweed will grow here with very little encouragement; but I hardly think it would make its way by itself.]

THE KEENEY METHOD OF WIRING FRAMES.

THE BULGING OF THE FOUNDATION, ETC.

When this method of wiring frames was first made public we were just wiring a lot of frames for use the coming season, and I made haste to try the new plan. It looked well, worked beautifully, and I was delighted to think that the wires on the outside of top and bottom bars could at last be avoided. But by the time a few sets of frames had been made up I began to be doubtful; and the more I thought of it, the less I liked the plan, so I told my helpers we would wire frames the old way until we saw how the new plan worked in practice.

When I saw the first frame of comb built on those wires I said, "Just as I thought. Another of those things that look well but won't work when you come to try them." The foundation had bulged out at every one of the large openings, making a most unsatisfactory comb. The top had not lopped down, because we had fastened it with melted wax and rosin; but the combs were so uneven that I did not want them in the brood-chambers of my hives. I was perplexed and astonished, though, when it seemed that others were making a success of it. You continued to advocate it in your catalogue, and even reduced the amount of wiring, making the openings larger than they were with the original plan, and very much larger than in the shallow frames I use. The only way I could account for the difference in results was by supposing that the very thin foundation I use was responsible for my failure, so I kept still. I have since had several hundred frames wired by this method, but they were to be used as extracting frames, spaced 1 4/7 inches apart. No brood will be raised in them, and after they have been uncapped once or twice it makes no difference how irregular the septum is. For brood-frames, though, I have never found any plan of wiring as satisfactory as the old way—with diagonal wires and tin center-bar. You have complained that brood was not reared in the cells over the tin bar. My bees rear brood over the center-bar about as well as elsewhere. I think the trouble with you was, that the bars were made like some you once sent me—three-cornered instead of flat. If the bar is folded flat, and properly put in, I should think it very strange if the queen did not, in time, lay in the cells over it as well as anywhere else.

DRONE COMB IN HIVES.

In my answer to Question 190, I meant to say that my *combs*, not *colonies*, are originally all worker, and that I try to keep them so. I do not know whether it was my mistake or the compositor's. It is practically impossible to keep all the drone comb out of a hive. The bees will build a few cells along the bottoms, or in the corners of the combs, and these are all they need. Sometimes they will tear down worker comb, and build drone comb in its place; and any holes made in the comb by mice, or other accident, are apt to be filled with drone comb. If there was more than one or two square inches I would cut it out and replace it with worker comb. I think the bees would get along just as well without drones, if it were practical to get rid of them entirely. I would much rather not have any drone comb in a hive, even when used for extracting above a queen-excluder. The queen is often tempted up stairs thereby. Most of the excluding-zinc sold will allow a queen to get through, if she wants to get through badly enough. Even when it is impossible for her to get through, the bees will sometimes save drone-cells for her to lay in, sometimes even standing considerable crowding before they will put honey in these reserved cells. Do you say that this great desire for drones shows that they ought to have them? By no means. They will do just as well without them, and it is unnecessary to humor them. Man can improve on Nature's ways in many respects, and this is one of them. Of course, we want to encourage drone-rearing in some colonies for breeding purposes.

CLARIFYING WAX WITH SULPHURIC ACID.

The articles on this subject, while very valuable to those handling large quantities of wax, have been, as some one has complained, of very little use to the average bee-keeper, because they conveyed the idea that expensive apparatus, and especially steam under pressure, was necessary. Small quantities of wax can be clarified in this way just as well as large ones, and by the simplest means, though of course with a little more trouble and labor, proportionately.

Take the ordinary earthenware milk-crock or stew-pan, such as are found in most households. Put into this about a quart of water, and add a dram or two of sulphuric acid. Put in wax enough to fill within an inch or two of the top, and bring to a boil. Care must be taken not to heat the crocks too rapidly, or to have the stove too hot where they are. You will save time by heating the water, crocks, and wax, separately, but great care is necessary in uniting sulphuric acid and hot water. The union of sulphuric acid and water—even cold water—generates a large amount of heat; and if the water is already hot there may be an explosion, which might be dangerous. Let it boil gently for fifteen or twenty minutes, stirring it well meanwhile. Watch it very carefully, that it does not boil over. Keep a dipperful of cold water in one hand, while you stir with the other, and add a little whenever there is any sign of boiling over. Let it cool in the crocks; or, the top may be carefully dipped or poured off into molds. You will be surprised to see what nice yellow wax you can make from the blackest and dirtiest scrapings. With crocks enough, a great deal of wax may be clarified in this simple way without much labor, though if you have much to refine you will want something less fussy and more expeditious.

THE HONEY-YIELD.

What's the matter with white clover? For another season our old friend and stand-by has gone back on us. The fields were white with blossoms, the weather seemed favorable, and we had reason to expect a good yield. But scarcely a bee was seen on clover, and the honey stored in the hives was the dark, thick, and wretchedly tasting honey-dew. Didn't the clover yield any honey, or did the bees prefer the honey-dew? Basswood yielded well, but there is not much of it here. Sweet clover has yielded fairly well, but the farmers have taken it into their heads that the roadsides must be mowed. Ragweed, dock, cockle-bur, and their allies, had possession of the roadsides for years, and no one was alarmed or moved to action. For that matter, they are not yet, where those are the only weeds. But sweet clover is a conspicuous plant. A stalk of it makes more show than a dozen ragweeds. What other reasons there are for its destruction might make an interesting study. The fiat has gone forth that sweet clover must be exterminated from the roadsides. In this they will never succeed until they improve their methods. It will continue a struggling existence, but this almost unobjectionable weed, the only one of any use to anybody, is under a ban, and the crop of the bee-keeper will be many a pound lighter in consequence. J. A. GREEN.

Dayton, Ill., Aug. 4.

[The Keeney method of wiring has generally given good results; and the reason why *you* had such badly bulged combs was as you say because you used such thin foundation. In all our wired frames, we have been using what is called "medium brood," which I suspect is a heavy grade of foundation compared with what you have been using, hence difference in results. The Keeney method. which we continued to advocate, however, I think was better than the original plan; and the scheme of having it wired the other side up, as I recently explained in GLEANINGS, gives still better results. We have been continuing our experiments with the *horizontal* wiring, the wires being left loose, and using all grades of foundation, from the heaviest to the thinnest we can manufacture in large sheets; and the result has been uniformly perfect combs. Combs built on the perpendicular plan of wiring are good, but they do not compare with these on the horizontal loose wires. Try it and see. But be sure to leave a good big ⅛ inch between the edge of the fdn. and the bottom-bar, to allow for stretching. The thinner the foundation, the more space will be required. Remember that this horizontal plan is the one used so successfully by the Dadants, Geo. E. Hilton, and others.

In the articles on clarifying wax with sulphuric acid, we did not intend to have the impression conveyed that expensive apparatus must be used. However, most of our readers like yourself could readily adapt them to their own use. Steam under pressure is not necessary, but it is a great convenience. I have no doubt you can use the milk-crock for rendering small quantities very nicely. Yes, the acid does have a wonderful effect in improving the color of wax; and I propose to talk about it until bee-keepers generally will use it, even in rendering out small quantities. It is well known that yellow wax brings several cents more per pound; and the expense of the sulphuric acid is so little in comparison with the returns in dollars and cents, that no intelligent bee-keeper who has very much wax to render should neglect to try it, especially if he has any regard for profit.]

E. R.

FIXED FRAMES.

DR. MILLER SHOWS HOW THE LOOSE FRAMES KILL MORE BEES.

Bangs wanted to know on what frame I had settled.

I said, "I haven't settled. As you know, I am trying several, and I don't know yet which I like best. On what have you settled?"

"Oh!" said he, "I'm well enough satisfied with the old loose hanging frame. Even if any thing else were better, have you any idea they are enough better to pay for the trouble and vexation of havin' a half-dozen different kinds in your apiary, and throwin' away or changin' over all your old ones that have done you good service, and that you know are good?"

"I've no notion," I replied, "of changing every thing in a day. For a long time I have been dissatisfied to have my frames ⅜ of an inch longer and ⅛ of an inch shallower than the Simplicity, although I don't suppose in actual results there will be difference enough to notice; but I should like to be in line with others, and to have what comes nearest to being standard, if I can do so without too much sacrifice. So, as fast as any of my hives become too old for good service I want to replace them with Dovetailed hives; and as the frames must also be changed, it is of some importance to find out just what is the best."

"Well," said Bangs, "what's the matter with just changing the size and having loose frames? If I remember rightly, it was a man just about your size that once told me he wouldn't tolerate a frame that he couldn't move about in a hive as he pleased."

"Yes," I said, "I did say so; but we are learning all the time. At that time, the only advantage I could see in fixed frames was the convenience of having them always ready for hauling without any danger of having frames swing or slide out of place. While that is a very important matter to some, it is not so much so to me, for I live in a rather level country, and can haul my hives without having the loose hanging frames fastened otherwise than by propolis. Still, there are times when fixed frames would be better, for sometimes I should like to open a hive before hauling it away in the spring, but can not do so without breaking up the fastening of bee-glue. But there were other things that I did not realize at that time. Now, Bangs, will you please tell me some of your objections to fixed frames?"

"I'll give you one objection," said Bangs, "that's enough to knock the whole business. It's this. If the distance is fixed, all combs must be just so far apart from center to center, no matter how thick the combs be, and no matter whether they are bulgin' or hollowin'. Now, you know well enough that some combs are different from others, and one ought to have a chance to space them different."

I didn't make any reply, and for a few minutes we talked about something else. I then said, "Bangs, how far from center to center do you think brood-combs ought to be spaced apart?"

"Scant 1⅜," said he. "Mine are all that distance."

"Don't you think it would be handy," said I, "to have some arrangement by which you could be sure that your frames were always properly spaced, without any danger of mistake?"

"No," said he, "I wouldn't give a cent for any thing of the kind. I'm so used to it that I can space them exact just by letting a finger of each hand be squeezed just so much."

Said I, "Are you sure that all your frames, every one of them, are so exactly spaced?"

"Yes, sir," said he, emphatically; "you may look through my hives, and measure between the top-bars, and you'll find them alike all through."

"Now, see here, Bangs," said I, "if you try to space all frames at exact distances, what becomes of your objection to fixed distances that you can't space according to your combs? According to your own story, you try to have fixed distances now, without the convenience of doing it quickly, and being sure that it is entirely exact."

He looked down for a minute and scratched his head, and then, like the good-natured fellow that he was, he broke out into a hearty laugh. "Well," said he, "I don't know that it ever came to me before that I was using any thing like fixed distances. I guess you've got me. But I'll tell you another objection that you can't get over so easy. Whatever toggery you use to keep your frames at fixed distances, you're sure to kill a lot of bees; and with loose frames, they don't touch, so you can't kill any bees."

"I'm not so sure," said I. "You know that it is claimed that, by having the right space made exact, together with thick top-bars, there are no burr or brace combs. Now, don't you believe that your burr-combs make more trouble than the end-bars touching together, *if* it is true that such burr-combs can be avoided?"

"Why, no," said he, "I didn't suppose so."

"Well, you think about it. Bits of comb and honey are put without stint between the top-bars, and when a bee gets to licking up honey in such a place, you must give her a pretty rough squeeze, perhaps several of them, before she is ready to move on. Then when you go to replace your honey-board it's still worse. You can't see what you are doing; and unless you go very slowly and carefully you are sure to kill a number of bees, probably more than you ever know of; for by the next time you open the hive the dead bees are all cleared away. Now, suppose the only chance to kill bees is by having the end-bars come together; don't you see there is less surface comes together, even if the whole of the end-bars touch, than the combined surfaces of burr and brace combs that come together between top-bars, and between top-bars and honey-board? But even if the space between end-bars were much greater, you know very well that a little touch will make a bee get out of the way when it is standing on the bare wood of the end-bar; whereas you may mash it sometimes before it will get out of the way when on a spot daubed with honey."

"Well, now," said Bangs, "I guess it's jest accordin' to how we're used to things. Mebbe if we'd git used to it, like them New York fellers, we'd change our notions, and I guess you better give the thing a fair trial, and I'll watch how you come out. At any rate, I didn't know before, or leastways I hadn't thought of it, that I was usin' fixed distances, and smashin' more bees than closed ends would." C. C. MILLER.

Marengo, Ill.

[You cornered Bangs completely, and there are more bee-keepers just like him. Although they disclaim it, yet, at the expense of a great deal of time and labor, they try to maintain between their frames a fixed and invariable distance.] E. R.

IMPROVING BEES, ETC.

IMPROVING RACES OF BEES BY SELECTION, ETC.

A correspondent wishes me to tell the readers of GLEANINGS my opinion as to the effect of breeding, on black bees, had the same course and untiring energy been spent on them in trying to improve them which has been put upon the Italian bees, and winds up by saying, "Would not the black queen now be larger, finer, and more prolific, etc., had such a course been pursued?"

Undoubtedly there would have been some improvement in the black or German bee, had the apiarists of the United States taken hold of the matter with the same will in breeding which they have shown in breeding the Italian bee up to its present standard; but I do not think that the effect would have been as marked on the German bee as it has on the Italian, for the simple reason that the black or German bee is a fixed race or variety, while the Italian bee is nothing more than a hybrid, in my opinion. Any race of animals which are fixed and constant in their breeding, can not be improved nearly so easily as can one which is liable to sport. The same holds good in the vegetable kingdom, all of our best varieties of vegetables being obtained from "sports." Breed black queens as carefully as you may, they will not vary a particle as to color, while the Italian queens vary from a queen nearly if not quite as black as any black queen, to one whose abdomen is of an orange yellow throughout its whole length; hence those who have bred for beauty as well as other qualities have been able to succeed in producing queens that will give all yellow queens every time, and whose worker progeny are a solid yellow nearly its whole length. Those who have paid no attention to color breeding have seen their bees go from those with three yellow bands back to bees with scarcely a bit of yellow on them; and yet there is scarcely a number of a bee-paper printed but that tells somewhere in its columns about "pure" Italian bees. If the Italian bees are a *pure* race they are given to sporting beyond any other known pure thing. It seems to me it is impossible for these bees to be any thing else than a hybrid. This inclination to sport as to color gave the assurance that they would sport as to quality as well, so we have breeders who have worked for a very industrious bee, and have seen industry come to the front with them. Others have worked for wintering qualities, white capping of the combs, etc., and seen these qualities increase; till, take it all in all, the Italian bee, as bred in the United States, undoubtedly stands at the head of all the bees known to the world. This is evidenced by calls coming for them from all parts of the world; and could they be shipped the same as can non-perishable articles, there would not be a country on the face of the earth, where bees could exist, where they would not be found. Now, the same thing which keeps the black bees from sporting as to color, hinders them from sporting in other directions desired by the bee-keeper, so that, to a certain extent, they are nearly if not identically the same as they were when they first left the hands of the Creator. There is a certain amount of improvement by the "survival of the fittest," and yet such improvement has not advanced these bees as much during the centuries which have passed as has the hand of man the Italians during the past quarter of a century; nor has the hand of man ever made as much improvement on them during all the long past as has been made with the Italian during the last decade.

There is one other thing which I wish to notice in the correspondent's question before closing. He wishes to know whether the black queens would not be "larger" and "finer" had the right course of breeding been pursued. All of my experience goes to prove that an exceedingly large queen is rarely if ever as good as one of a medium size; and if it is meant that a large queen is "finer" than is one not so large, I beg to differ with the writer of the question. A large queen seems to be less active than a medium-sized queen, and, so far as my experience goes, they can not be depended upon to bring the colony up to the greatest strength at the pleasure of the apiarist so well as can queens of lesser size. It would seem by the complaints which come to almost all queen-breeders, saying, "The queen you sent me is small," that, if queens sent out could be as big as bumble-bees, the purchaser would be far better pleased than he is with a queen which is capable of *great* things, but small to look at when she arrives at his postoffice. The old saying, that "you can not tell by the looks of a toad how far it can jump," applies more fully to a queen-bee than to any thing else with which I am acquainted, especially to a queen which has come a long distance in the mails. I have seen queens which came a long journey in the mails, which did not look nearly so well nor as much like a fertile queen, as did virgin queens which I had in my yard at the time; but give them a few weeks in a colony during the month of May and they would not look like the same queen, and could do a business at egg-laying which was a marvel to the most fastidious. The queen that is capable of producing the desired number of worker bees in just the right time for the honey-harvest, and these workers have the desired energy in securing the harvest (all minor qualities being equal), is the queen which will give the best results, be she large or small; but the real moneyed result will generally go with the queen of medium size, for she is the most apt to give the bees as above.

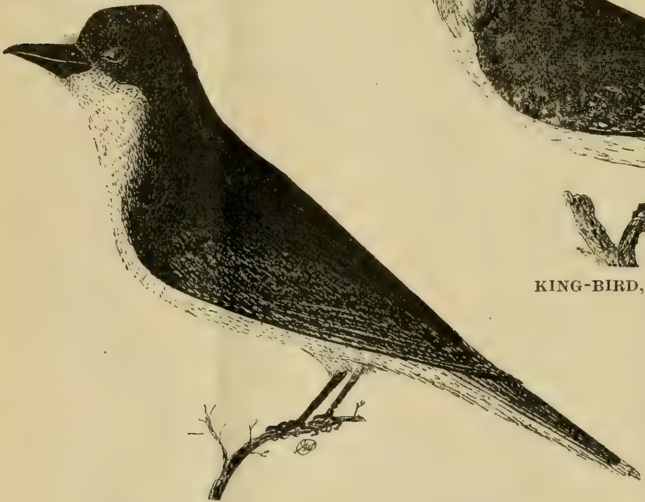
Borodino, N. Y., Aug. 4. G. M. DOOLITTLE.

[Friend D., you may be right in the above, and you may be wrong, so far as I know, for I confess it is deep water for me. I do know, however, that *some* of our plants and vegetables are capable of very great changes, and in a very few years, by careful selection. Out in our garden, right before me, is a great whopping—well, I can't tell you its name, for the plant has evidently not yet decided whether it will be a cabbage or a cauliflower. There is a great mass of leaves inclosing something. The shape of the leaves indicates that it is a cauliflower; but at present it looks as if these leaves contained only a good-sized cabbage-head. Our readers may remember my White Plume lettuce. A single stalk of lettuce in the greenhouse came up looking white. I at first thought it was caused by feeble growth and lack of sunshine, etc., and therefore I hadn't much faith that it would perpetuate its bleached appearance. By much pains and care, however, I succeeded in getting it through the winter, and making it bear seed, and the little plants *were* more or less white. By selection we got heads of lettuce that were like some of our coleuses, mostly white. with green splotches; but when we tried to sell them on the wagon we were rewarded for our pains by having customers object, fearing that the bleached appearance was caused by something we put on it to *kill insects*. Well, we should have succeeded in getting it all white, no doubt; but by that development of its albino peculiarity the plant became enfeebled, and I soon found that we must work for good solid heads as well as for whiteness. Old dame Nature seemed quite willing to give us one or the other, but I have about given up trying to get both. The white plants do not make good heads, but just push up to seed. If I were to attempt to reason by analogy, and say that the albino bees will be feeble and "run up to seed," I should probably be jumping at conclusions. I wish Prof. Cook would tell us what he thinks about it.] A. I. R.

KING-BIRDS.

THEIR HABITS; AN ENEMY OF BEES.

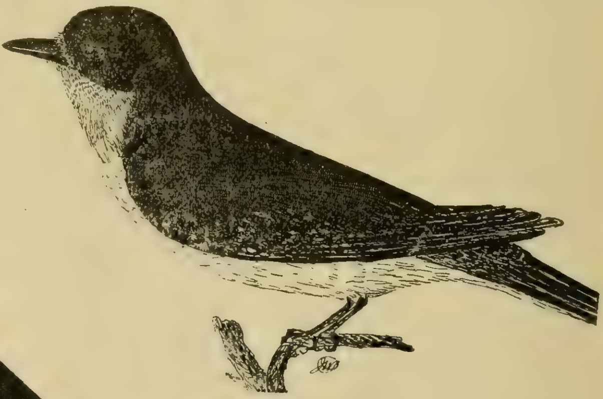
[*Editor Gleanings:*—The question of the king-bird and its habits as discussed in Gleanings at different times has not thrown much light on the habits of that bird; and from what has been said by correspondents in that journal from time to time, it is apparent that some have mistaken other birds for the king-bird. That such a mistake should be made is not so very strange when we consider how little well-informed people on other subjects know of ornithology, and, worse than that, those who attempt to write on any of the different species of birds are usually very careless or else ignorant in regard to the subject. Our cyclopedias and natural histories are also faulty in this respect, and more on account of poor illustrations than from detailed description. The American Cyclopedia describes the king-bird quite accurately in respect to its size, color, and markings; but the cut of the bird as there given resembles the bird commonly called "phœbe" nearer than it does the king-bird. I send you drawings, both of the male and female, which are more true to life.


KING-BIRD, MALE; ⅔ NATURAL SIZE.

The king-bird in this latitude (42) brings forth its brood toward the last of June or the first of July, usually from three to six in a litter. It builds a substantial nest of rather coarse material, most often in the forks of large limbs of a tree, and close up to the tree-trunk, without any perceptible attempt to screen it from rain or sunshine. When situated near an apiary, the food of the young king-birds, at least while they remain in the nest, is mostly bees and usually drones. Five young king-birds were taken from their nest at sunset, and dissected. Upward of forty bees, mostly drones, were found in the gizzards of the five. Please note, not in the crop, but in the gizzard; for king-birds have no crops. The fact that they have no crop, and that the œsophagus does not appear to be larger than an ordinary shoe-string, certainly not capable of expanding much more than to accommodate itself to the size of a large drone, should be sufficient proof to contradict any statement to the effect that they are capable of regurgitating their food in quantities described in the A B C of Bee Culture.

DOES THE HONEY-BEE RECOGNIZE THE KING-BIRD AS ITS NATURAL ENEMY?

Circumstances seem to indicate that they consensually so understand it, and are ever ready to punish it whenever they have an opportunity to do so. Only a few years ago two men were preparing to hive a swarm of Italian bees which had just issued from a hive; and while waiting for them to cluster, their attention was called to two king-birds whose actions indicated that they were in a panic of alarm and perfect fury. Their continual screams seemed to voice both feelings of despair and rage. They would dive out of their hiding - place right into the cloud of circling bees, screaming, and snappping their bills, then suddenly dart back to their cover of thick brush, followed by a perfect stream of bees. While this battle was going on, three full-fledged young king-birds fell to the ground, and died from the effect of stings. The parent birds, which had so heroically tried to defend their brood, were never seen afterward, probably having also died from stings.


KING-BIRD, FEMALE.

The love of the king-bird for drones affords a sufficient excuse for all bee-men to make war upon him, even if it did not touch the worker, for it could easily mistake a queen for a drone; then, too, the cumbrous flight of the queen and drone when united in the air would be a very tempting morsel for a bird that loves to take its prey on the wing. J. W. PORTER.

Ponca, Neb., June 30.

NUBBINS.

THE AGRICULTURAL COLLEGE AT LANSING PRONOUNCES SPECIAL PLANTING FOR BEES ONLY, NOT A SUCCESS.

This is proving our third poor honey season. Every person says, "What delightful weather!" People who have gone north are hastening back, or sending for cloaks and overcoats. Is there any connection between the cool weather and the small honey-flow?

The matter of "honey-dew" is one of national importance. I am getting scores of letters, asking, "Why is our honey so dark, so strong, and what can we do with it?" It should have been kept from the sections. It can be used for manufacturing—for cakes, cigars, and printers' rollers. May be it will be safe for winter. It surely will do for spring food for the bees. What does friend Muth say on the matter?

I think our experiments have shown that special planting for bees is not advisable. If a plant can be found that will surely grow, will secrete nectar in all weather, will self-sow, and hold its own against weeds, etc., and needs no cultivation, such a plant might pay just for honey? Is there such a plant?

We have tried experiments this season that show most conclusively that bees are a blessing to the farmer and fruit-grower. These latter should either keep bees or else beg the bee-keeper to come. I am sure all will be interested in experiments that prove beyond peradventure that bees are very essential in nature's economy.

Agricultural College, Mich. A. J. COOK.

SHUCKS.

Bro. Root:—I see you always have "Straws" to go with your "Heads of Grain," so I concluded to bring you an armload of shucks to be fed to your readers, along with the "Nubbins" furnished by Prof. Cook.

I've been thinking what a grand scheme it would be to get a queen each from friends Nebel and Moore, and raise a strain of bees that would "root over the flowers," spill their contents, and just "roll in the honey" like a little boy gathering pumpkins. This scheme is not patented.

Dr. Miller can have nice nail-boxes cheaper than he makes, by getting a restaurant-keeper to open some square oyster-cans, according to the constitution and by-laws stamped on the thin-tinned end. Cut them down the side a piece, take part of one side off, punch a hole in the long side to hang up by. What better could one ask? Neat, light, cheap and durable. I never lost any sleep "hatching" this invention, doctor, so it is free.

SNAKEY.

Yes, I too have seen prairie rattlesnakes swallow as many as seven young ones "way down," but they did not "give them up in the dying act," as friend LaMontagne says. The one with seven didn't give 'em up till our old dog shook her in two. Those little fellows were old enough to fight. But a copperhead is old enough to fight before leaving the eggs. I saw a man once who thought his boots were "too snakey" and wouldn't have them on.

PAINTED APICULTURE.

I think Dr. Miller put in some hard licks in the right place in speaking about the "rosy hues." It seems, from all appearance, that honey-producing will soon be as badly overdone as the queen-rearing business now is. From the number of advertisers catching on every issue of GLEANINGS, it looks as if every breeder would soon have to be his own customer.

Carbondale, Kan. J. H. MARKLEY.

THE SILK-MOTH.

ITS CARE AND CULTURE.

While there are several larvæ of moths that spin good and abundant silk, there are none that equal the mulberry silkworm, or the Chinese silk-moth, *Bombyx mori*. This insect has been cared for so long that it has become feeble, pale, and nearly helpless, so that, should man fail to care for this valuable insect for a single year, the species would become extinct.

The moth is white or cream-colored, with obscure brownish stripes across the front or primary wings. The moths are about the size of our common cabbage butterflies, though, of course, the body is much heavier. Curiously enough, neither sex can fly, though the male is the more active of the two. We see here how too much care and fondling tends to weaken. It is not the boys or girls whose parents do every thing for them that set the river on fire. The insects mate very soon after they come from the chrysalis state, and the female commences almost at once to lay her 300 eggs. Strangely enough, the female will lay, even though coitus does not take place. What is still more strange, these unimpregnated eggs sometimes develop. Thus we have here what we see in aphides and our drone bees—parthenogenesis, or agamic reproduction—reproduction without males. The eggs are glued fast to whatever receives them. It is common to place thick paper by the insects to receive the eggs. The moths lay these eggs in late summer, and soon die. The eggs hatch the next spring or summer. The form of the egg is nearly spherical, slightly flattened. It is small and yellowish; an ounce of eggs will produce 40.000 worms. The eggs are lighter colored just before hatching. The larva is also whitish, rather rough, with a caudal horn, like our tomato-worm and other sphinx larvæ. When small it is quite hairy; but as it becomes full grown, the hairs are lost. When mature it is nearly two inches long. It feeds on mulberry or osage orange. It is an enormous feeder, as any one knows who has raised it. It is said to eat its own weight of leaves each day. This may not be correct, but it is not very far out of the way. It is no slight task to care for a large number. The larvæ are usually kept in trays, and the feed must be kept fresh and clean or disease will destroy all the insects. The larvæ are also helpless. If put out on to the trees, they are blown off and destroyed. Like the moth, long care and dependence has made that care necessary to life itself. The larva feeds for nearly a month, when it spins its cocoon, which is egg-shaped, as large as a small hen's-egg, and may be white or yellow. The worm is about three days spinning its cocoon; then it rests three days, when it pupates. It remains as a pupa for three weeks, when the moths come forth. If the eggs are not desired, the cocoons are heated, so as to destroy the pupa. It is easier to wind the silk off from such baked cocoons; for if the moth comes forth, she breaks the thread, which is spun as one continuous fiber. If the eggs are wished, the moths are suffered to come forth, mate, and deposit their eggs on the heavy paper on which they are placed.

Of course, it is interesting to care for a few of these insects; but the labor is quite severe, and the returns quite slight. Labor in Europe is so much less than here that it is to be doubted whether this industry will ever give satisfaction. There are quite large establishments, I think, in Kansas and California. My experience with silkworms has been only that of an amateur. Will not some experienced reader of Gleanings correct my statements if necessary, and add further points? A. J. Cook.

Ag'l College, Mich., June 17.

RAMBLE NO. 43.

WAXWORKS OF ECKERMANN & WILL; A VALUABLE AND INTERESTING ARTICLE.

Having for several years sent our surplus wax, whenever we had any, to the firm of Eckermann & Will, of Syracuse, N. Y., and receiving prompt returns and the highest market prices, we desired a further acquaintance with them; and as we rambled through the city of Syracuse the opportunity was embraced of looking their works over, and with the following result.

FACTORY AND BLEACHING-YARD OF ECKERMANN & WILL, SYRACUSE, N. Y.

The waxworks of Eckermann & Will were established in 1855. Mr. Anthony Will was a practical wax-worker from Germany, and, soon after settling in Syracuse, he commenced making candles and working with wax upon a common kitchen-stove. From this humble beginning the business has grown to its present proportions, which employs about 70 persons, male and female, and who yearly transform thousands of tons of crude wax into the many beautiful things into which wax can be worked. In the basement of the factory we find crude wax from all parts of the world, and the qualities are as various as the countries from which it comes. This variety in quality is derived, it is supposed, from the different flora from which the honey is obtained. The wax from Cuba is of a cherry red, while from the adjacent island of St. Domingo the color and quality are entirely different.

Imported wax comes in various stages of dirt, and requires much cleansing before it is fit for use. Wax from Africa is shipped in large 300-lb. cakes, covered with sacking, and contains much foreign substance. American wax is shipped in barrels and boxes, in the well-known tin-pan shapes. The firm gives North Carolina the banner for producing the best quality of wax in this country.

The receipts of American wax have fallen off to a certain extent during the past few years; but foreign wax has steadily increased, and especially since the enactment of the new tariff law, which allows wax to come in free.

As foreign wax is taking the place of native wax to a certain extent in the manufacture of foundation, Messrs. Eckermann & Will find that a little educational process is required to teach foundation-makers the difference between native and foreign wax. Parties who have ordered wax from them have been dissatistied with quality and color, and immediately jump to the conclusion that it is adulterated. The name of the firm has certainly been long enough before the public to give assurance that the wax, or whatever else that may be ordered from them, is true to name and description; and if the firm had conducted its business on the plan of deception they never would have grown up to their present prosperous proportions.

The wax is melted by steam in large wooden tanks, with a capacity of 1000 lbs. It is reduced to thin sheets in another long tank, in the end of which is a revolving cylinder about 2 feet in diameter. After sheeting, it is spread out upon canvas trays for bleaching. The yard in the rear of the factory will contain 10,000 lbs. of wax, and that amount was going through the interesting course of bleaching at the moment of our view, which is here reproduced.

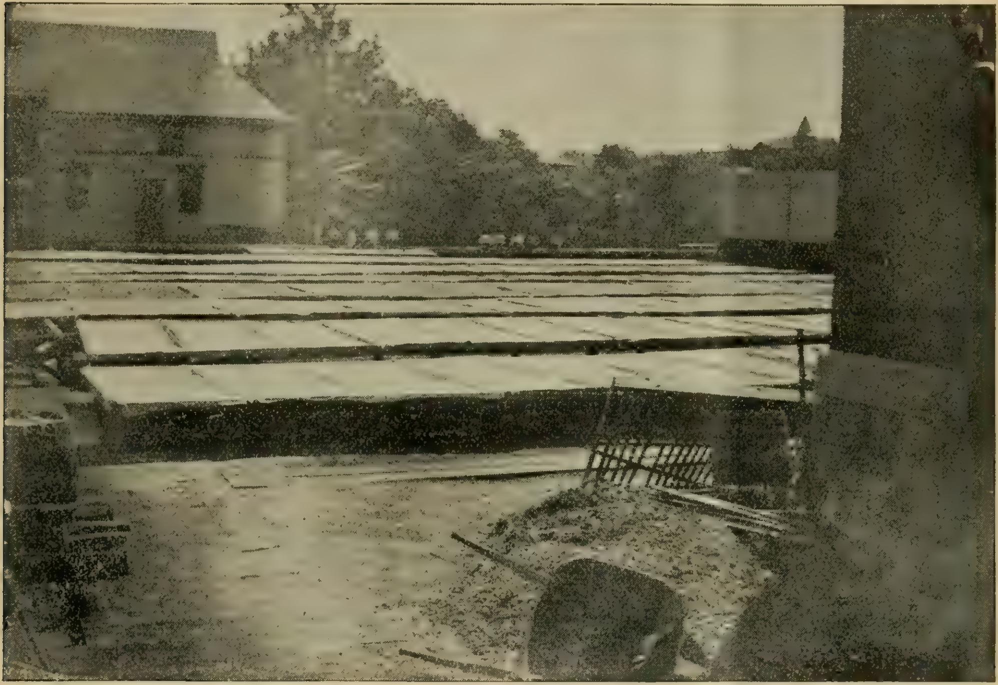
When the wax is first put out it compacts more or less; and during the first processes it has to be frequently showered with water, and worked over by hand to keep it in a loose and arable condition. As the process draws toward completion it is then shielded from wet or rain by being placed under protecting sheds if a shower should rise. The bleaching process also develops other features in foreign wax. Some will not bleach at all. When the bleaching process is finished on good wax it has a pearly whiteness good to look upon. After bleaching, colors are incorporated in the wax, and the artist in wax has a wide field to exercise his artistic taste. Church, fancy, and toy candles are made in large numbers in all shades and colors, and in all stages of decoration. Some candles are made after the old dipping process, but the greater portion of them are made in molds, in which hundreds can be made in a short time, and which have a very ingenious self-wicking attachment.

At present the firm are making large candles. A 15-lb. candle was too much of a temptation for our Hawkeye to pass by, and we here give the appearance of it by the side of a workman. The largest candle made by them weighed 75 lbs. These large candles are made for merchants. The latest popular advertising fad is to set up one of these mammoth candles in a store, touch a match to the wick, and let people guess how long it will burn. Of course, the one guessing nearest will get a suit of clothes, a piano, or a building lot, and the merchant get a power of advertising. Another important branch of manufacture is a refined article for the drug trade. This is put up in small fancy cakes, and sent to all parts of the country.

A majority of the workmen are Germans. The leading industry of Bavaria has for years been the making of church candles, and their product is the best in the world; but from the number and variety in this manufactory we think Bavaria has a worthy representative in Syracuse. A cheaper grade of candles is also made of paraffine and stearine. Ceresin is also used. This latter product comes from Silesia, Austria, and is almost like wax, but it eventually hardens and becomes tough like rubber.

The firm have never manufactured foundation, except in an experimental way. The experiment was not a success; and from points we have learned since visiting the factory, we think the result of further dealings in the aforesaid line will result only in money out of their own pockets.

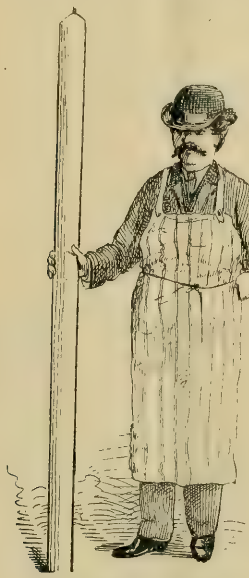
The founders of this establishment have gone



ANOTHER VIEW OF THE BLEACHING-YARD.

the way of all living; but the younger Wills continue the business under the old firm name; and from the honorable and enterprising way it is conducted, we expect to see the business still further develop.

Syracuse is one of those energetic cities of Central New York supported by a fertile farming country. Its leading industry is the manufacture of salt, from the abundant saline springs there found.



A MAMMOTH CANDLE.

There are many bee-keepers located in this vicinity, and their wants in the supply line are attended to by F. A. Salisbury, who not only manufactures but handles supplies for other parties. Winter losses were heavy in this portion of New York, and Bro. S.'s outlook and his feelings seemed to be lacerated thereby, and electricity had greater charms for him than the keeping of bees. We tried to give him the California fever in order to give Dr. Merchant another patient; but we fear the doctor will not get a fee from Mr. S. To encourage the doctor, several cases will soon be handed over to him by the RAMBLER.

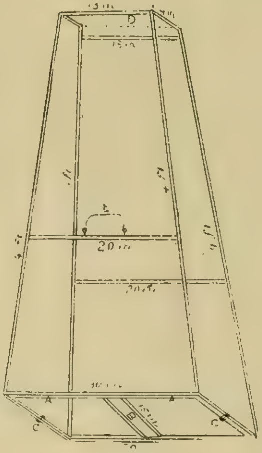
[You have indeed given us a valuable article; and this, together with your Hawkeye views, gives us a glimpse of the extent to which one of the products of the apiary (wax) is used in the arts outside of its use by bee-keepers in the form of foundation. I venture to suggest that very few bee-keepers who have sent Eckermann & Will wax have before realized the magnitude of their business. It might be interesting to know what proportion wax sold for foundation in their business bears to that used in other lines. Perhaps the company or the Rambler can favor us with the information. As bee-keepers use very little if any bleached wax for foundation-making, we must infer that the product of the large bleaching yard shown in the two views, of a capacity of 10,000 lbs. at a time, is used wholly for other purposes. Say, Rambler, why didn't you tell us more about the bleaching—how it is done in detail, and what it is for? The three views are exceedingly interesting, and stimulate a desire for more facts. Is that big candle held by the workman supposed to be made entirely of wax, or is the candle better for the mixture of some grease or paraffine? Wouldn't pure beeswax at 26 or 27 cents wholesale be rather expensive for those big candles, or in the small candles used in the Catholic churches? By the way, it has been intimated in a quiet way that Eckermann & Will have sometimes sent out adulterated wax to foundation-makers. Of the many tons of wax that we have bought of them we never had any but the pure article, and we have no evidence of their furnishing it to other makers. Indeed, it would be very poor policy, for "doctored" wax for foundation can be so readily detected. They may mix other ingredients in wax used for other purposes, and this would be perfectly legitimate, so long as the foreign addition did not deteriorate the wax. In fact, we suspect, for instance, that candles made of pure beeswax are not so good as those made of adulterated wax. When adulteration improves an article, and consumers understand the fact (mark this), then adulteration is perfectly legitimate.]

E. R.

MRS. GOLDEN'S SWARM-CATCHER.

HOW TO CATCH A SWARM BEFORE IT GETS INTO THE AIR.

I inclose a photograph of Mrs. M. A. Golden's swarm-catching device. It may an old idea, used years ago, for all we know; but, nevertheless, it is one of the best, handiest, and most complete arrangements for catching swarms when issuing from the hive that we have ever used. The cut will explain the whole matter better than words can, and is very easily constructed.



MRS. GOLDEN'S SWARM-CATCHER.

My good wife is the author, and suggested the above device, which I hastily constructed. You see I caught her using it in a few minutes after completing the catcher; thus she has caught some 18 or 20 swarms with it, and the queen every time. You see there is no fussing or catching from trees, and running through the hot sun; but simply, when a swarm is issuing, pick up the device and hold it against the entrance, and behold with considerable pleasure that no tree is to be climbed or stings to be induced.

To construct the catcher, take 4 strips of pine 4 feet long, ⅞ in. square; 2 strips 30 in. long by ¾ square; 2 strips 15 in. long by ¾ square; 2 strips 20 in. long, ¾ square; 2 strips

13 in. long, ¾ square; 2 strips 4 in. long, ¾ square; one strip 15 in. long, ½x3 wide, nailed together as per diagram, and covered with cotton cloth, but light oil cloth is much the best, with the gloss side in: 2 light sash, A, covered with wire cloth, are slipped into a groove at B, and fastened by a spring C. A flap of cloth is tacked to the upper slide at D, and when the catcher is moved it falls over the entrance and keeps the bees from getting out. When the swarm has issued, take hold of the wire bale at E, and go to your hive and sprinkle the bees through the wire cloth; then turn the catcher with wire screen down, and a shake places the bees on the screen spring; the screen at C which comes out, and the bees, are shaken off and harmony reigns supremely. Any one using the above catcher, old or modern, will be blessed with a mild temper in swarming time.

J. A. GOLDEN.

Reinersville, O., June 25.

MRS. GOLDEN'S SWARMER CATCHING A SWARM.

[These devices will doubtless work very nicely if you can get to a hive just as the first bee of the swarm are coming forth; but in most cases a swarm is entirely or nearly out and in the air before they are observed. There are cases when these hivers would be very useful: During the height of the honey season, swarming-out is contagious; and while one swarm is in the air, another, hearing the swarming-note, is very apt to come forth. By keeping up a careful watch at such times these swarms can be trapped, and so prevent them from uniting with the one already in the air; but the apiarist must be spry.

We have engraved in half-tone the photograph of Mrs. Golden hiving the swarm, so that our readers can witness an actual case.

I am unable to say whether Mrs. Golden was the first one to conceive the idea. Mr. B. Taylor, of Forestville, Minn., used a similar device last year. Of its practical workings in a letter received he says:

Friend Root:—I send you to-day photos of two swarm-catchers invented by myself. I used one of them last season; and I will say that it does the work with absolute perfection. One person can adjust it to the hive instantly, without killing a bee, and it will be tight whether tilted much or little. The self-hiver is equally perfect, and offers no obstruction of any kind to the bees while at work. I took all these things to the Keokuk convention, with the intention of giving them to the bee-keeping friends, but I was met in a different spirit from what I expected, and had no chance to offer them.

B. TAYLOR.

Forestville, Minn., May 14.

It is quite possible that these devices may be very serviceable in a good many instances. We should be glad to get reports from others who have used them. By the way, there ought to be a good many who have tested the Alley automatic swarmer. How has it worked?]

E. R. R.

RIPENING SAGE HONEY ARTIFICIALLY.

QUESTIONS FROM A CALIFORNIAN ANSWERED BY A CALIFORNIAN.

In our locality—Coast Mountains—the sage honey is too thick to allow it to ripen in the comb. We use a tank of 3000 to 4000 lbs. capacity. The greatest heat is about 115° in the shade.

1. Do you advise setting the tank in the shade or in the sun?

2. What is the greatest heat that honey will ripen in without injury?

Last, Cal. GILSTRAP & GILSTRAP.

[We sent the above to Mr. J. F. McIntyre, who replies:]

1. You may set the tank in the sun if you cover it with white muslin, and do not let it stand over two weeks; 115° in the shade means 135° in the sun, in California, where the air can circulate; but in a hole or tank, the air gets much hotter. I once spoiled half a tank of honey by covering it with wire cloth, and letting it sit in the sun about a week. My neighbor had a hen lay in a nail-keg which stood out in the sun during a hot day, and in the evening the egg was cooked. Myself and neighbors all set our tanks in the sun; but I intend to put a shed over mine this spring.

2. I have never made any careful tests, but I have reason to believe that honey will stand a higher temperature if heated with hot water or steam than it will if heated in the sun. I believe that the strong light has some effect on the honey to make it darker, and that honey allowed to stand in the sun soon acquires an old strong flavor—becomes rancid, as it were. I have frequently heated honey to 160 or 170° by setting the can in hot water, without injury; but I am sure that that amount of sun heat would spoil the honey. I have great faith in a "vacuum pan" for evaporating honey; and if I knew where to get an air-pump of half horse-power capacity I would build one and try it.

Fillmore, Cal., Apr. 7. J. F. McINTYRE.

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FRAMES.

DR. MILLER DISCUSSES THE HOFFMAN FRAME.

Isn't it time we were having reports coming in from different quarters as to success and failure with different kinds of frames? For after all the discussion it is hardly possible that there has not been considerable experimenting. Come on, friends, and tell us how you came out: give us your successes and failures, especially the failures.

It is hard to be fully settled, but I'll tell you about my experiments, as far as I've got. That feature of the Hoffman frame that allows the ends of the top-bars, and the upper ends of the end-bars, to come together in such a way that the bees can get at the rabbets only from below to propolize them, I am much pleased with, and think whatever else may be about the frame, one feature must be, that the ends of the top-bars must be wide enough to touch. The great advantage is, that you can slide several or all the frames along together.

But the thickness of the Hoffman top-bars that I have had is ⅝, and I am not satisfied with that. There are decidedly too many burr-combs over them, and the top-bars of ⅞ thickness are just as clear, so far as I can judge, as the slat honey-board. Possibly as they become older they may not work so well, but that does not alter the fact that ⅞ is ahead. It may be that one inch might be still better, but if ⅞ always works as well as it has done so far, I think I shall be as well satisfied as I am likely to be with any thing in bee-keeping.

Some top-bars have mortises cut in them for tenons on the ends of the end-bars. That makes a nice fit, but it weakens the top-bar at that point, making it liable to split off. Decidedly, no mortises for me.

So much for top-bars. As for end-bars, I don't know enough about it yet to know whether the Hoffman is all right, or whether end-bars closed their entire length are better. To tell the plain truth, I don't know yet just how to handle either. If, in putting one frame against another, it is first to be rested on the rabbet and then slid along, then the less of the end-bars to touch each other, the less danger of mashing bees. But if the lower end of the frame in the hands is first to be placed against the upper end of the next frame and then to be slid down, then there is no more danger of killing bees if the end-bars touch their entire length. Still, even in that case, the shorter the part of the end-bar that touches, the quicker it can be slid down. So far, then, the advantage is on the side of having the end-bars touch only at the upper ends. But another thing comes in. If the end-bars touch their entire length, we have the closeness of the box hive, and it may be that this is so important, especially at the North, as to overbalance the disadvantage in handling. Who can help to settle this?

So far, then, as I can see, the frame I want is the Hoffman having a top-bar not less than ⅞ thick and a little more than an inch wide, having end-bars possibly touching the entire length, possibly only part way.

As to one point in using these frames, I am still in the dark. In using loose hanging frames, suppose the top-bars are one inch wide, and they are spaced 1⅜ from center to center. That will leave ⅜ space between the top-bars. I believe it is the general custom to leave the same ⅜ space between the outside top-bar and the side of the hive. Now, in the hives that I got with Hoffman frames, there was no provision for any thing else than to have the top-bars fit snug up against the side of the hive, for of course if every thing is not wedged up tight together we have no fixed distances. By the way, there was nothing provided to wedge up with. Well, when the loose frames with inch-wide top-bars have ⅜ between the top-bar and hive wall, if the comb is ⅞ thick there is $\frac{7}{16}$ of an inch between the face of the comb and the hive wall. But if a Hoffman top-bar is 1⅜ wide, if it is shoved up tight to the wall, there is just a quarter of an inch between the face of the comb and the hive wall. Will that do? In a hive with Van Deusen spacers I let one frame fit snugly against the side of the hive, and that side of the frame had cells so shallow that no brood could be in it. Did it only happen in that case, or would it always be so? If the frame must be spaced out further from the hive, how should it be done? I have nailed on little pieces on the side of the hive, but I don't entirely like that, for I don't like any thing that makes one side of the hive different from the other. I'd like to know how to fill up the other side of the hive, also how to wedge up the dummy, etc. C. C. MILLER.

Marengo, Ill.

[Yes, doctor, it is time we were having reports as to the success or failure of the different kinds of frames, and I am glad you have started the ball rolling. If some frames are great labor-savers, and others are not, those of us who are earning or trying to earn our bread and butter off the bees want to know what frame or frames it is.

The Hoffman top-bar, with its widened ends, is good, and I think the majority of those who give it an unbiased test will so agree. There may be some difference of opinion regarding the *end*-bar, but I think that, if we accept his top-bar, we all sooner or later will adopt the end-bar substantially as Mr. Hoffman himself prefers it. Mr. H. uses a deep frame, and hence the widened part of the ends does not need to extend down more than 1½ inches on the L. frame. It's my opinion, that the less that comes in contact, and yet is sufficient to keep the bottom-bars correctly spaced, the better. One and a half inches, I think, will be enough. Another thing: Hoffman's idea of having the parts of the end-bar V-shaped—i. e., one square shoulder against a sharp edge—is something we must have. At first I thought we could dispense with it, but now I see its importance; but, more anon on this point, when I will illustrate the reason, with diagrams.

The Hoffman frames, to be handled the most expeditiously, should be set down in the rabbet and then slid along; hence I do not want too much depth to the wide part of the end-bar; because, the greater the depth, the more liability to kill bees. You *can* have closed ends with Hoffman top-bars, but the sliding function is then sacrificed; that is, the sliding of the frames in the rabbets. Without this, rapid handling is greatly hindered, because we wish to avoid killing bees.

There should have been with your hives small strips of wood about 3 inches long, $\frac{3}{8}$ wide, and $\frac{3}{16}$ thick. These are to be nailed to the inside of the hives in such position that, when the frames are crowded up, there will be the usual distance between the comb and the side of the hive that there is between the combs. But, after all, we have left them off in actual practice in our Shane yard. I am not sure it is necessary to wedge Hoffman frames.] E. R.

LADIES' CONVERSAZIONE.

NOT GLOVES, BUT OIL OF WINTERGREEN FOR THE HANDS.

A SUGGESTION FROM A DOCTOR IN AUSTRALIA.

Dear Sir:—The May numbers of GLEANINGS arrived a few days ago, and I see that the writers in the Ladies' Conversazione are much exercised in their minds on the subject of gloves for apiary work, and all sorts of materials are recommended, from pigs'-skin to sheep's-wool. Gloves are no doubt of use to keep the hands clean and soft; but I want to tell the ladies that, so far as stings are concerned, they can do without any covering for the hands. Just let them get some oil of wintergreen and rub a few drops of it over their hands; and if they can get a bee to sting, unless it is hurt, they are cleverer than I am.

It is now mid-winter here. The day is dull and threatening rain, but the temperature is not low enough to keep bees indoors; the day, however, is of the kind on which they are usually cross; but just now I went out, and, after putting on a veil and rubbing my hands with oil of wintergreen, I removed the cover of a hive and stripped off the mat, which was stuck down with propolis. The bees came at me in fine style, and dozens of them struck my hands; but as a rule they went off at once. Some remained, and curved their bodies around so that it took some strength of mind to prevent me from knocking them off; but they always thought better of it before the sting went in. I then jarred the hive and jerked my hands over the frames; but, though numbers of bees struck my hands, I was quite unable to get one to sting. I repeated this with two other hives, with similar results.

I know that the use of oil of wintergreen in this way is not new; and Mr. Cheshire, in his "Bees and Bee-keeping," Vol. II., describes some experiments similar to the above which he and Mr. Simmins conducted; but they do not seem to have taken root, and I notice that, in your review of Cheshire's work, you do not mention it. I feel convinced, however, that, were the fact more generally known, gloves for handling bees would soon become things of the past.

The smell of oil of wintergreen is not disagreeable, and it does not soil the hands. It is, moreover, easily washed off afterward. Cheshire says that, in England, it is often adulterated, and it is here also; but, of course, I know that they wouldn't do any thing like that in America. They might, though, in Canada.

H. MILLER, M. D.

Warrnambool, Victoria, Australia, June 29.

[Is not oil of wintergreen the chief ingredient of apifuge, a substance that is sold in England as a preventive of bee-stings when smeared over the hands? The stuff did not prevent the bees from stinging our hands, although it did seem to make them hesitate a little. We accept the very fine compliment you pay us Americans. We wish we deserved it.] E. R.

BEES KILLED BY CLOSED-END FRAMES.

MISS WILSON DISCUSSES THE MATTER.

We read a great deal about the closed-end frames being troublesome in killing bees; but I don't think they can compare with brace and burr combs, and the honey-boards as bee-killers. It would be a great saving of time and bees if we could manage to get along without those three articles. I would not object so much to the honey-board, providing the space between the top-bars and honey-board were not filled with burr-combs and honey. But if your colonies are strong, that is almost always the condition of affairs. Just go to a good strong colony, pry up your honey-board, and you have a sticky, dauby mess. Then pry your frames apart, and the brace-combs are just as bad. In handling your frames, unless you are very careful the honey is dripping all over your clothes. Now try to replace your frames and honey-board without killing bees. The bees will stick to the honey as if they were glued there, and it will take a good deal of patience and smoke if you do not kill any, to say nothing of time.

The bees will be very thick, both on your honey-board and top-bars. You can dislodge them from your honey-board by giving it a vigorous shaking, or you can take your honey-board in one hand, and, with your other hand, pound on the hand holding the honey-board; that will jar them off quickly. But you can't shake or jar your top-bars. Nothing but smoke will do any good, and I am not always able to get them out of the way with that, and I use it pretty freely too. I truly believe I kill more bees in this way than any other. Thick top-bars are a great improvement. While they have not been entirely free from brace and burr combs, they have been nearly so. The fact that they are new may have had something to do with it, and they may not work so well when older. But, even if necessary to use honey-boards, with them I should still want thick top-bars to lessen the dauby mess over the top-bars.

Our bees have seemed possessed this year to build brace and burr combs. I don't think we were ever so much troubled with them before. They have built them between supers of sections, on separators—in fact, almost everywhere it was possible to find a place for them. We carefully scraped them off separators and sections each time the supers were moved, and usually found them as good as ever next time the supers were looked at.

Of late, in putting on our supers we have written a memorandum on the top of one of the sections, to keep track of the work of the colony. For example, suppose on the 10th of July we give No. 12 the third super. We write on the top of one of the middle sections, "12, July 10, 3d." It has been a great help, as we can tell thereby what the colony has done, and how much more room it is likely to need, even supposing all the supers but one have been filled and taken off. Before, we had bothered about telling how much room to give. Suppose we come to No. 3. It has a super lacking a pound or two of being full. Now, if this is the second or third super it has filled, it ought to have more room; but if it has been all summer filling this one, it will do very well as it is. By our memorandum we can readily tell how much it has done, and act accordingly.

Marengo, Ill. Emma Wilson.

[So you have really discovered that keeping a memorandum on top of a section in the hive is less trouble than lugging around a great book. I am glad to hear of it. But, now, why not have a slate on top of the hive, or hanging on the hive, instead of being obliged to raise the cover, and then make a section unsalable by unsightly figuring? Stay a little. Perhaps I am in haste in my remarks about "unsightly figuring." If it were done by a feminine hand it might make a difference; but who wants pencil-marks on a section of honey? If the pencil were very sharp, and the writing small, with fine lines, it might not be so bad, and I should say it is most assuredly a short cut. Other bee-keepers have found it out, for I have repeatedly seen memoranda written with pencil on different parts of the hive when visiting bee-keepers. Sometimes the memoranda are so voluminous as to cover considerable space. Your suggestion in noting down the rate a colony has been bringing in honey is certainly a big advantage. I have seen expensive blunders made in just the way you mention in your concluding sentence.]

A. I. R.

[You have given a true picture of the nuisance of burr-combs between honey-boards and the old-fashioned thin top-bars; and it begins to seem that bee-keepers all over the land are coming to the same conclusion. The slatted honey-board scarcely sells now at all as an article of hive furniture, at the Home of the Honey-bees; and we are informed that another large supply establishment is about to throw it out of their price list. The reason is not given, but presumably the sales had gone down so low it did not pay to advertise it any longer. A year ago this month we had only recently purchased our Shane yard. The colonies to the number of about 80 were on loose thin top-bar frames, honey-boards on top. We had a large order to fill from this yard, which required opening about half of the colonies. Honey stopped coming in, and our boys had actually to give up work on account of the tearing loose of the burr-combs, and the consequent dripping of honey and the inevitable result of robbers and cross bees. The next day we sent down a force of three men, and even then they had their match. The apiary is now all on Hoffman frames, with thick top-bars. There are no burr-combs on any of the 80 colonies, except between two stories of one strong colony; and in this the foundation had got loose so as to bulge into the next frame. The reason was apparent. Well, what a contrast now! We can open or handle any colony, with the exception of the one noted, without breaking a single burr-comb. We sometimes sever a few brace-combs (spurs of wax *between* the frames), but aside from this there is not a drop of honey that comes from broken combs. You say thick top-bars are a great improvement. Just so; but if you had a bee-space reduced to a scant quarter of an inch, I feel pretty sure you would not find a single burr-comb. The hives you use provide for a ⅜ bee-space, if I am correct.]

E. R.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 191. *I am a beginner. Will it pay me to spend $5 to attend the State convention, or would I better spend the money for papers and books about bees? I have the A B C.*

Indulge in both.

Ohio. S. W. C. F. Muth.

I would spend it on bee-literature.

California. S. R. Wilkin.

If you think you need expanding a little, attend the convention.

Ohio. N. W. H. R. Boardman.

If you can not afford both, I would say, take the papers and books.

Wisconsin. S. W. E. France.

If you can spend but $5.00 you had better invest in papers and books. It will pay you to put $5.00 in each direction.

Michigan. S. W. James Heddon.

Unless you wish to have the pleasure of meeting some of the fraternity, it will pay you better to invest in the bee periodicals and books.

Louisiana. E. C. P. L. Viallon.

That depends upon the individual. Some can not learn from books, but readily "catch on" in conversation and when they see things done.

Illinois. N. W. C. Mrs. L. Harrison.

If you can attend a good State convention for an outlay of $5, do so by all means, and then you will feel like spending $5 more for papers and books.

Ohio. N. W. A. B. Mason.

Until you have read good books and journals attentively, and followed their instructions carefully for at least a year, you had better invest your money in books and papers.

Illinois. N. C. J. A. Green.

You can probably buy more new ideas in books and papers than you can gather at a convention; but if you already take the leading bee-journals, and have read the bee-books, you will learn things at a convention which no amount of reading will give you.

Illinois. N. W. Dadant & Son.

Having but $5 to spend, and wishing to make the most of it, you'd better spend one dollar of it for one year's subscription for a paper devoted to bee culture that will report the doings not only of your but many other conventions, and then you have $4 left with which to buy bee-books.

Vermont. N. W. A. E. Manum.

Perhaps you will value my advice more if I tell you that I am sour on conventions, and seldom go. Notwithstanding this, if you have five dollars burning in your pocket, and waver between convention and some more books and

papers, I would say, go to the convention. I presume you would get a better-balanced view of some things by seeing and hearing actual men who have made a success with bees.
Ohio. N. W. E. E. **Hasty.**

I hardly like to say. I think likely you'd get more information from the books and papers, but I believe it might be best to go to the convention, for you'll be pretty sure, if you do go there, to get the $5 worth of printing afterward.
Illinois. N. C. C. **Miller.**

Invest the $5 in bee-literature; for if you go to the convention you will not likely remember well enough to make a practical application of more than a small part of what you hear. With the books, you go over them till familiar with their contents.
Wisconsin. S. W. S. I. **Freeborn.**

I think the books and papers would very likely do you the most good—certainly so if you are a veritable novice. One must have some knowledge and experience to get much good from a convention. You would profit by meeting and talking with bee-keepers.
Michigan. C. A. J. **Cook.**

If you have the A B C and take a journal, spend no more on literature until you master what you have. If you are to succeed in bee culture, the A B C or any other one standard text-book will give you all the desired present information. You might learn some points at the convention; at any rate, the change and the contact, and the touching of elbows would probably be well worth $5 to you; and if you go, don't be afraid to ask questions—pump everybody you meet. The Rambler will try to answer if you attend his convention.
New York. E. **Rambler.**

It would not do for me to advise you not to attend conventions; and if I should advise you not to take Gleanings, perhaps the editor would not print my answer. You ought to take one or more good bee-journals, and you ought also to attend one or more good conventions, which includes our own. At conventions you get something you can not get from books and papers—you get a knowledge of men, and learn who are the level-headed writers. For this reason our wide-awake editors attend conventions.
New York. C. P. H. **Elwood.**

With me, the money and time would be more profitably spent in reading some more good works on apiculture, and putting the thoughts into practice, if I were a beginner. This is just what I did on the start. However, I realize that there is not another Doolittle, of just the same make-up as I. therefore *you* might spend that $5 to good advantage in attending conventions. Don't rely too much on the advice of others, but study your own make-up; and when you see what you want, move right out along that line. If you have the right mettle in you, you will succeed, no matter how many "flat stones" are laid on your head.
New York. C. G. M. **Doolittle.**

[No. 191 is a hard one. If a bee-keeper has had two or three good seasons it will pay him to go to a convention. For the money, he can get more information out of books and journals; but to see and talk with an old writer whom he has known through the printed page for several years is a pleasure indeed, and his writings will have double value thereafter. It is worth something to know the visible personality of writers. There are very few that have attended conventions who, on returning home, would be willing to have the money paid back to them and forfeit the benefit of what they gained by attending.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MORE ABOUT MALTA; OLD RELICS.

Gleanings for June 1 contains a correcting letter from friend D. Noble about the island of Malta. Though he may know a good deal about many things in Malta, still I maintain that I was wronged in being put in Lazaretto for ten days. I was coming from Jaffa, and no cholera was there. I landed in Egypt without interference; my passport was examined, and the English steamer that brought me to Malta was set free, while I alone had to be in quarantine; and, again, the French Mediterranean squadron coming from Beyrouth, in Syria (the cholera being in that province to the north), was freely permitted to land. Why can one man more easily bring in an epidemic than several thousand soldiers and sailors? Explain this "quarantine regulation."

You likely, friend N., meant Citta Vecchia with its wonderful spring. Yes, I've seen this, the catacombs, etc., not the pressure of Paul's foot, as we have similar things here in Palestine by the dozen; but such things are only tradition. We have the print of Christ's foot on Mount Olive; we have drops of his blood; we have Elijah's bed in the rock; we have the stone that "*would* have called out hallelujah" on that first Palm Sunday; we have the angel Gabriel's finger-prints when he kept back the rock of the temple trying to follow Mohammed into heaven; in short, we have possible and impossible things. When I said "nothing but carob-trees," I meant as being worth any thing for bees. A few oranges, lemons, apricots, are not sufficient for honey-gathering. Plenty of fig-trees are growing around from Floriana to Sliema; but fig-trees yield no honey except the overripe fruit, just as do grapes. Olive-yards are also to be found, but all availing nothing for bees. That is what I meant. I, too, should enjoy an exchange of ideas as to the "haunts of the pirates" in the beginning of this century.
Philip J. **Baldensperger.**
Jaffa, Syria, July 6.

WASPS AS AN ENEMY OF THE BEE; THEIR HABITS.

Prof. Cook:—By this mail I send you two insects—a big wasp I caught sipping honey from a honey-can, and another insect I take to be one of the asilus family. It was captured trying to force an entrance into one of our hives, but the door-keepers seemed to say no. Please name the insects through Gleanings. I enjoy your entomological talks, and only regret that the demon of work pursues me at a time when I should like to be collecting my favorites (beetles). We are thinking of trying Heddon's new hive on account of the inversion feature. H. H. **Young.**
Perris, Cal.

[Prof. Cook replies:]

The large beautiful wasp sent by H. H. Young is a species of stizus, new to me and to our collection. These wasps have a very powerful sting, which they use to paralyze their prey as they capture it for their young. They breed in cells which they dig in the earth. In these they store the stung and paralyzed young. Thus baby wasp has tender spider or locust steak as soon as it wakes to life. These wasps, except that they sometimes capture bees, are wholly our friends. They rarely sting human beings, if the latter will leave them unmolested. I have had a fine paper wasp-nest close beside my door all the summer through. I admired the industry of Mrs. Wasp, and she surely had nothing against me or mine, for she never showed war or any thing but the most kindly spirit. Wasps like and act upon the tit-for-tat rule. If struck they strike back; if hit on the cheek, they turn not the other, but the abdomen. And this wasp morality is that, I regret to say, of many people. This species is very near, and may be stizus grande.

The fly seen going into the bee-hive is a robber fly, as Mr. Young thought, a species of asilus. It is dark in color, with a snow-white band across the abdomen. The whole under surface is white. These flies, like the wasps, are very predaceous, and destroy many of our foes. It is too bad that they will pounce upon the useful honey-bee. Yet, as I have often suggested, they do very much more good than harm. A. J. Cook.

Agricultural College, Mich.

APPLAUSE AND CRITICISM: WHY A SUBSCRIBER LIKES GLEANINGS.

Gleanings contains more information suited to the masses than any other journal I have yet seen. Prof. Cook's suggestion relative to your editorial course is full of wisdom, and should not be classed with "Nubbins," or, at least, we Texans think so. It's really refreshing ("an oasis in the desert") to find one who is willing, when his faults are pointed out, to publish them to the world. Really, brother Root, do you not feel just a little bit lonesome in the journalistic world? The prevailing custom is to publish encomiums, and send criticisms to the cruel waste-basket. But your course, notwithstanding any thing that may have been said, has endeared you to the readers of Gleanings in this part of the world. Prof. Cook's articles are more than worth the price of Gleanings. The names and habits of insects and reptiles as given by him are very interesting indeed. S. G. Christal.

Stony, Tex., July 16.

A USE FOR DRONE LARVÆ AND PROPOLIS; HOW TO CATCH TROUT.

The following is a use for drone larvæ and moth-worms. I believe in making all the products of the bee-hive useful. Any one having a choice lot of young chicks they wish to force and make happy, ought to give them their drone larvæ. After cutting out the drone comb I shove off the caps; and by tapping the under side of the piece, the young drones easily drop out. The hens will begin by eating, and showing the chicks how to eat the white ones; but after a while they will take them when they are almost old enough to crawl out of their cells. If there can be any thing more nutritious I should like to find it. Moth-worms are also as good. Both of them make the best conceivable fish-bait. If you are near a trout stream or lake, don't give it away, and your friends will wonder why you are catching all the trout. At Oakland, Md., boys spend their Saturdays (and Sundays too) looking for hornets' nests, and sell them for 50 cts. and $1.00 apiece. In 1888 a party of three fished in Browning's Lake three days, without catching a trout. My brother and myself arrived and found they were not biting; but on the second day we were able to procure a hornets' nest about the size of my two fists; and between the hours of 5 and 7 A. M. we took 90 fine trout. We had other bait, but as soon as the larvæ gave out the fish refused the other bait. I would have given a dollar then for a handful of drones. Trout refuse the larvæ after the wings are formed.

I save all my propolis, for it is more valuable than wax. It is splendid for waxing thread for sewing leather, and it makes as good a varnish as leaf shellac. Dissolve it in alcohol. Wood alcohol is cheap and good.

Arthur T. Goldsborough.

Washington, D. C., June 8.

[Friend G., your communication should certainly be a valuable one to trout-fishers if not to bee-men. In the first volume of Gleanings published 18 years ago, the idea of using moth-worm for baiting a hook was given; but your suggestion that drone larvæ, and the larvæ from the nests of hornets, is of value, is, so far as I know, new. Will those of our readers who are followers of our old friend Isaak Walton test and report? By all means, let us make use of the products of the hive. Will shoemakers and harness-makers please test propolis for waxing thread, and report?]

ORIGIN OF ALFALFA, OR LUCERNE.

We clip the following from the *Southern Cultivator and Dixie Farmer:*

I was recently on a tour in the West, and was asked the question whether I could ascertain if in any part of Alabama or Georgia an attempt had been made to raise alfalfa. This is also sometimes called lucerne. As you are in constant correspondence with the farming district, I will appreciate receiving a reply. Vindex.

Atlanta, Ga.

The editor of the *Cultivator* gives the following answer:

Lucerne, or alfalfa, has been successfully grown in the South for fifty or more years. The writer's father cultivated it as far back as 1848, and we know not how much earlier. Seed were introduced from France, Italy, or Spain, some time in the forties, or possibly earlier, under the name of lucerne. Subsequently, some years after the acquisition of California to this Union, the same plant was introduced from that State under its new name, alfalfa, into the Western and Northern States, having originally come into California from Chili, South America. Hence its Spanish name.

WHY THE SWARM ABSCONDED.

I have something in regard to bees that the best bee-man in these parts can not answer; and if the whys and wherefores can be given, I should like to have them given in Gleanings. On the 11th of July, 20 minutes before 2 o'clock, I was driving along the road and saw a large swarm of bees hanging on a small tree at the roadside. They looked so nice I wanted them bad; but I dared not go back home after a hive, so I thought of a neighbor who kept bees, so I hurried and got a hive; and in just 30 minutes I had them in it. At sundown I brought them home and transferred them into one of my hives (I weighed the swarm, and had just 10 lbs. of bees) with foundation and three frames of new brood comb. At 2 o'clock Sunday they commenced to come out of that hive with a rush, and nothing would make them cluster, and to the woods they started. My boy followed them half a mile, and then lost track of them in the woods, and I bade them good-by and went into the house disgusted. In not over 20 minutes I looked out of the window at the hive, and I saw the air full of bees, and out I went. They were going into that hive with a will that soon took all in that came, and at just 3 P. M. I opened the hive and saw that not over half of my swarm had come back. I weighed them, and had 4 lbs. back, out of the 10 lbs. that went away; so I gave them a frame of brood, sealed and unsealed, and in just 71 hours they had ten queen-cells started in good shape. Now, here is the strange part of the drama: Why did those bees come back without the queen? Some say part of the swarm got lost. Who ever heard of a bee getting lost? J. R. CASSELMAN.

Panama, N. Y., July 27.

[Friend C., all you mention is but an ordinary occurrence, with the exception of a part of the swarm coming back; and I can think of no explanation except that the swarm must have strung out to such length that a part of it without the queen got separated from the rest; and if they came back after only a short interval of twenty minutes, my opinion is that they never clustered anywhere at all. They simply got lost, and flew around in dismay, hunting for their queen; and as they could not do any better they went back to their hive where they last saw her. It is true, bees do not often get lost—that is, they do not get lost to such an extent but that they can find their way back to their hive; and that is just what these bees did do: The other part of the swarm got away from them, and they had no means of "catching on" to the lost trail, inasmuch as it all happened up in the air.]

THE BROTHERHOOD OF FEELING IN GLEANINGS.

Friend E. R.:—In your criticism, or comments, on my article (p. 418) you mention that Mr. Hoffman uses hive rabbets only ¼ in. wide and deep. That is a fact which was not mentioned in any other article in regard to the hive, and must, to some extent, assist in the prevention of the destroying of the lives of our little laborers. 1. In regard to the zinc roofs I use, they cost me about one shilling each, size 21 x 22 inches. They need no paint, and are practically everlasting. 2. In regard to escapes, I was prepossessed with the one brought out by Mr. Porter, and made one on the same principle to try it. I hope I have not made myself liable for infringing a patent, however; and although the night was cold, there were only a very few bees in the body next morning. 3. I see you ask for opinions as to the best or most attractive features of your journal. To me the best feature of it was, and is still, its warm genial atmosphere. It makes one feel at home to read of "friend" Root, "friend" Miller, "friend" Doolittle, Terry, and the rest; and to see the way in which every one corrects every one else without the corrected one getting mad and leaving the school does me good; and although I may never cross the tide that separates us, yet the influence of this broad charity helps one to stand up and do his own duty in a cheerful spirit; for are we not all brothers and sisters, with, in the aggregate, common interests? 4. I have extracted the first honey this season today, July 1. The weather is unsettled at present, but all around is one mass of white clover, and none cut yet, as, owing to the protracted drouth, the hay was too short and poor, and the present showers promise to help it a little.

J. STORMONTH, JR.

Kirkbride Silloth, Cumb. Co., England.

A STATEMENT OF ACCOUNT WITH THE BEES.

I will give you my experience and some figures, the result of the nice queen and two pounds of bees I bought of you in August, 1889. This is considered a very poor country for bees, and I think it is justly considered so.

	Dr.	Cr.
August, 1889, to 2 lbs. bees, one queen. - - -	$5 00	
Express on same - - -	1 75	
By August, 1890, increased to 4 colonies, at $5 00 each,		$20 00
By July, 1891, increase of 6 colonies, at $5 00 each, -		30 00
By July, 1891, sold honey to the amount of - -		17 00
By July, 1891, 3 queens - -		3 00
By July, 1891, 10 hives cost -	11 00	
Totals - - -	$17 75	$70 00
Net profit in 2 years,		52 25

You will notice that I valued the bees at $5.00 per colony, but I would not take $10.00 per colony, cash, for them. I feel sure that I have as nice and as good working bees as any one in the business. Since I have had Italians, a man could not give me the common black bees, as I consider the blacks as worthless in comparison with the Italians.

I have one question I wish to ask you. I have been told that bees could not be kept on a railroad where coal is used—that the coal would kill out the bees in a year or so. Is it so? If it is, I shall have to move mine off somewhere from the railroad, as I will not part with my bees now, for I love them too well to have them destroyed in that way.

I think the Dovetailed hive will be the hive for me in the future, as the one I bought of you a few days ago shows, according to my notion, in addition to my figures. I expect to get at least $5.00, or may be, $10.00 worth of honey yet from my bees this season. H. N. JOHNSON.

Mooresville, N. C., July 25.

[Don't be alarmed because of coal smoke, and the proximity of railroads. We have two railroads, with attendant switches, within 100 feet of us, besides the smoke from our own factory chimney. If there were any truth in such a statement, the bees ought to have been dead long ago.]

ANOTHER COLONY LIVING AND PROSPERING WITHOUT A HIVE.

I discovered, a few days ago, an outdoor colony of bees which seemed to prefer the pure air, plenty of it. They had located on an outside limb of an apple-tree, within 20 feet of my brother's residence in Norwood, a beautiful suburb of Cincinnati. They had evidently been there for some three or four weeks, for they had some four sheets of comb hanging down from the small limbs to which they were attached, and bees already hatching. I would have left them there to see what effect the weather would have, and how long they would endure the winter frosts, but for the fact that the wind had already detached one of the combs, which fell to the ground, and was the means of discovering to me the location of the swarm.

Cincinnati, O., July 18. J. FERRIS PATTON.

[We have had several other recorded instances where colonies have lived and prospered in the open air; but that prosperity, except in warm weather, probably would not extend beyond the summer season.]

A QUEEN LAYING DRONE EGGS AFTER BEING CHILLED.

In June, 1890, I started a nucleus which was rather weak, but succeeded in rearing a fine Italian queen, and in August it was strong and running over with bees. Jan. 7, for some unaccountable reason, the queen-bees and all left their hive (a two-frame box 3½ in. x 10 x 18 in. long) and clustered on the front of a hive close by. During the night we had a cold rain, or sleet; and when I discovered them in the morning they were more or less covered with ice. Supposing they were all dead, I brushed them off and found the queen, which, to all appearance, was chilled to death; but after holding her in my hands a short time she began to show signs of life, and in a few minutes was lively. During the same day, Jan. 7, I discovered a queenless colony which was very weak, and after laying the chilled bees in the sun awhile, most of them revived. I then put the queen and all into the weak colony. It being cold again until about the 20th I did not examine them until that time, and found quite a lot of eggs and some capped brood; but all had the appearance of drone brood. After that time I examined them every warm day until March 25th, and found that nothing but drone eggs had been laid by the queen since she was placed in the hive. Was the cause of her laying all drone eggs the result of her being chilled? R. J. ANDERSON.

Palouse City, Wash., July 17.

[You are right, friend A. The fact that freezing would injure a queen so that she would produce only drones, was given by Baron von Berlepsch. You will find an account of his experiments in a little book called "The Dzierzon Theory."]

PLURALITY OF QUEENS IN ONE BROOD-NEST.

I have, by long experience, found out that, if one queen is good, two are better; so I have succeeded in placing any number of queens in the same brood-chamber, all loose on the same combs, and they all agree nicely. I have seen them meet on the combs and caress each other. I should like to hear from the bee-men, and should like to know all opinions. I have one colony with four queens in, and I can take out enough brood to rear up all the weak stock in no time. G. W. PALMER.

Greeley, Col., June 5.

[You are putting it too strong, friend P., I am pretty sure. I have seen queens that, at certain times, would behave nicely, even three or four on one comb. But I have also, a great many more times, seen them attack each other so fiercely that one was lost before I could hardly interfere. We tested a great number of these encounters with a glass observatory hive years ago. If you mean to tell us that you can at any time put two or three queens into a hive and not have them molest each other, it must be something new.]

PREVENTION OF FIRST SWARMS FROM RE-SWARMING.

Your A B C and all the prominent bee-writers have much to say about preventing afterswarms; but nowhere do I find any thing about preventing first swarms from re-swarming. As the large bee-keepers say nothing about this trouble, I conclude they do not have re-swarming, as I call it, and I should like to know how they prevent it. E. BENTING.

White Pine, Tenn., June 26.

[With black bees, friend B., it is very seldom that any sort of swarm sends out a swarm the same season. With Italians, however, and our foreign races of bees, when they get the swarming mania one swarm may send out several during a good honey-flow and a long season.]

HOW TO GROW GOURDS FLAT, THE RIGHT SHAPE FOR BEE-FEEDERS.

I notice Mrs. Axtell speaks of gourds for making feeders. They can be grown flat like a pan by putting a board on each side when they are small; they will then grow flat instead of round. The boards should be planed; and a nice way is to nail a block between each end of the boards, the thickness you want to grow your gourd. C. R. RUTH.

Elimsport, Pa., July 20.

We are having a great run on basswood honey, which has been good for many years without one exception. F. B. JONES.

Howard, Minn., July 23.

A REPORT THAT IS ENCOURAGING.

Our bees, 110 old colonies, gathered over 12,000 lbs. surplus, and have plenty for winter—all from basswood. A colony on the scales got 175 lbs. from the 10th to the 20th of July.

Viola, Wis., Aug 2. M. A. GILL.

I have 21 stands of bees, from which I have extracted this season, up to date, about 2100 lbs. This, I think, will beat the record, and they are now storing honey as fast as ever. The season is not half over. I have also managed several apiaries for my neighbors. Bees are all doing well here. A. B. FARRAR.

Palma Sola, Florida, July 18.

We are now packing honey-cases and sections of your make. The season is very late. This is the first we could get off, and yet our hives are "packed" to keep them warm. To-day the thermometer declares 108° Fah. The general opinion seems to be that this will be a good season for honey, but considerably later than usual on account of the cold backward spring.

Foster's Station, Cal., July 15. J. I. FOOT.

A GOOD REPORT.

My bees are doing well. I am extracting 2 to 2½ gallons from the hive, and selling at $1.00 per gallon. I have 15 hives. I have sold 4 at $3.50 this spring. I started with one hive five years ago (a present), and am out, say, $35; but I have sold enough to overpay it. I had honey all the time, and have the bees left as profit.

Kopperl, Tex., July 10. RICE MAXEY.

1000 LBS. OF HORSEMINT HONEY FROM 60 COLONIES.

We have had a fine honey year so far. My bees, 60 stands, gathered about 1000 lbs. of honey from horsemint. It is very good honey. I am counting on 2500 lbs. of honey this year. There are some 20 acres in horsemint in reach of my bees, and may be a little more than that. It has been in bloom all June. It grows on all waste land in this country, among other weeds, and is hurtful to any thing, and hard to get rid of. I think it would be well to sow on all waste land in fall. J. F. TEEL.

Elmont, Tex., July 5.

A DROUTH IN ARKANSAS.

A drouth is upon us, and the prospect for a white-honey crop from our main plant (cotton) is not promising. The planters will suffer as well, and I hope I am not with the number who say, "Misery loves company." I have taken only 1100 lbs. from my home yard of 100 colonies. The queen-trade, however, is brisk. I have shipped 430 to date, and have orders for 50 more, which will go in the next ten days. I will make a final report at the end of the season. W. H. LAWS.

Lavaca, Ark., July 22.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LIKE TO RAISE CROPS.

HOW TO RAISE STRAWBERRIES WITHOUT SO MUCH HARD WORK.

Candidly, I do not know, and that is what troubles me; and I will tell you how far I have got in looking over the matter. Friend Terry thinks the plants might be as near as six inches apart; and if the ground is rich it will give us fine large fruit. Where ground is expensive we wish to have it fully covered—that is, to its utmost capacity. If the plants are nearer than 6 inches each way, they crowd each other so much as to diminish the size of the berries if not the number of quarts. Well, we must have paths to walk in, for the ground will all be tramped hard, and the plants injured; therefore friend Terry has 3 feet of matted row and then one foot of path, and so on. Now, it is an awful big job (if you will excuse the phraseology) to get the matted row 3 feet wide, and thin out the plants so they are about 6 inches apart. Then in ordinary soil it is a big task to get the weeds out.

The ideal way would be to have the plants *set* in a bed 3 feet wide, and just 6 in. apart; and, in fact, one of our leading strawberry-growers does recommend just this way. Make long beds 3 feet wide, with paths one foot wide between them; then set your plants on these 3-foot beds 7 inches apart. But now comes in the matter of runners. If runners are allowed to put out and take root, where would be our ideal bed of plants all 7 inches apart? There is no way but to keep picking out or cutting off the runners; and unless you let runners grow, your bed is good for only one season, or at most two seasons. You see, the second season the plants would all be *old;* and Terry, and, I believe, almost everybody else, has demonstrated that the best and largest fruit comes from vigorous *young* plants; therefore for *garden* culture I would advise just the plan given above. If the plants are put out with the transplanting-tubes in July, August, or even September, they will be strong enough to bear a fine crop of fruit the next season. After the fruit is gathered I would give good cultivation (by hand or wheel hoes) and keep off all runners. By fruiting time the second season they would be tremendously strong plants, and pretty severely crowded; yet they would give an enormous crop of fruit, even if not quite so large in size as at the first season. Plants crowded like this will do very well without mulching, for the fruit-stalks will grow longer than ordinary to get to the light; and this, with the great masses of foliage, will keep the berries from the ground. If the fruiting season should be very wet, however, the berries would be, very many of them, very soft, and not as sweet as where they have more room to get sun and air. If, on the contrary, we should have a dry time during fruiting, these strong plants would shade the ground so thoroughly that they would give fine fruit when others wider spaced might be dried up. This does very well for the garden or small plantations; but I suppose the majority of our readers are more interested in strawberries out in the fields, cultivated by horse-power.

And now we come back to the fact that by far the easiest and cheapest way is to let each plant send out runners. The spacing would be a great deal better, it is true, if the runners could be made to go out like the spokes of a wheel, so as to cover the ground equally; but this is a difficult task too, and requires an expert. Just after fruiting, some of our Haverlands got to be very weedy—so much so that one of the men decided that the cheapest way to clean them out was to pull up plants that had rooted; then, with cultivator and rakes, clean out the weeds completely, then take the other side of the row, throwing the plants and runners over to the side already cleaned, and clean out that side, then put each runner in its place, covering each plant with dirt. How do you suppose it turned out? Why, the first time through there were so many plants with their roots sticking up in the air that I sent the boys back to do it over again; and after the boys had spent more time on that one row than I could afford, I sent a man to space the runners, and put the plants in the ground where they ought to be. But I never want to do that way again. It cost a good deal more than to have got the weeds out by hand. In our plant-gardens we have often taken some valuable variety and trained the runners by looking after them every day. In this way we can carry each one straight out from the mother-plant, to give all the plants their proper share of room, and make the mother-plant cover quite a large area—say three or four feet in every direction from the center. Now, this gives us beautiful strong plants and the finest berries. But you can not do any cultivating—or, at least, not very much. You can cultivate them about as you do watermelons when they begin to set fruit. All the weeds that come up must be got out by hand.

And now we begin to long for some soil that is rich and strong, but which does not have any weed-seeds in it. The strawberry-grower should have a piece of land specially for the purpose, where no weed of any kind is ever allowed to go to seed. Neither should any weeds be allowed to go to seed in fence-corners or on neighboring land. In fact, no weeds should produce seed within a quarter of a mile of the strawberry-plantation. You may say this is too much fuss and bother; but I tell you there has got to be fuss and bother somewhere; and prevention in this case is ever so much better than cure. Then, again, this matter of mulching comes in. In one of the strawberry-books we have a picture of a machine made of stoneware that goes all around the plant, and keeps it out of the dirt; and somewhere I have read of a kind of brick or tile with a hole through it, to let the strawberry-plant come up through, but covering the ground perfectly everywhere else, so no weeds can grow. I wonder whether anybody has tried that plan. Will strawberries grow and bear profitably where the ground is covered in that way? After all this discussion we finally come around to the fact that Terry's plan is less labor, and perhaps the nearest to perfection, of any thing that has yet been devised. But he gets his fertility by turning under clover. A good many of us get it by buying stable manure; and, oh dear me! what weeds we do get through stable manure! Sometimes I have declared that I would give it up and turn under clover. But we get along with the stable manure pretty well with almost every crop except strawberries. Some of you will say, "Why, brother Root, enrich your ground with chemical manures, or our modern fertilizers." Well, there I am just where the trouble is. On our ground I have never been able to discover any good result whatever from handling any of the fertilizers offered—that is, with strawberries. Ashes and bonedust do pretty well. Guano is also all right, but it costs too much. Our good friend "Joseph" (Tuscio Greiner) has just put out a very neat little book that makes the whole matter of chemical fertilizers plain and simple. The book is sound on chemistry, especially that which pertains to agriculture, and it teaches in a plainer and simpler way than any other text-book I have ever yet come across. But it speaks of success only, with these chemical manures. Its teachings are right in line with the *Rural New-Yorker* and many other agricultural papers. What does it mean, that neither Terry nor I can get any such results? Right in the plant-beds just before the window where I am writing we have a lot of American Pearl onions growing beautifully. They are put out very thickly in rows, to raise sets. Well, we have tried putting nitrate of soda on two rows, then skipping three, and so on through the bed. We skip three for fear the nitrate might affect the two outside rows. We have tried it in light doses and in heavy doses. In our last experiment we put on so much that it injured quite perceptibly the two rows where it was applied. Now, nitrate of soda is specially recommended for onions; yet on our soil it has never yet in any case been of any benefit whatever; on the contrary, where it has produced any effect, it has been a damage. Some may say that our ground is too rich already. But this can not not be. A part of the ground is new ground, and very poor—so poor that the onions have made a very feeble growth. What is the matter? I have almost come to the point where I should be glad to pay our experiment stations if they would send me a man who would teach us how to make nitrate of soda or any other chemical manure take the place of stable manure. I am not stubborn nor contrary a particle. I am, on the other hand, exceedingly desirous that the truth of this matter should come out, especially if we as a people are throwing away our hard earnings in the purchase of chemical fertilizers.

SPORT OF TOMATOES, POTATOES, ETC.

Mr. Root:—You complain about spurious tomato seed which you have sent out, and say that the bee-men you got the seed of have been careless if nothing worse. Well, friend R., *you* ought not to be uncharitable and so hard on your bee-friends. The Ignotum tomato is by no means a settled sort. I think it is nothing but a sport of some other variety, and hence liable to sport more or less. I have grown it, and raised my own seed ever since you introduced it, and I have been very careful; but in spite of me I had this spring, in a batch of perhaps 3000 to 4000 plants, three plants showing foliage like the Mikado, with the only difference that they had the same yellow tint as the Ignotum.

But, look here, old friend. *You* have not only sent out spurious *tomato* seeds, but also spurious potatoes. What were supposed to be Early Ohios I received, are some very late sorts. I was very suspicious about them when I received them; and had they not hailed from A. I. Root I would certainly have remonstrated; but as it was, I thought there could hardly be a mistake about them; but I know now there is little mistake, if nothing worse, somewhere. I think you have been humbugged with them, because *potatoes* do not *sport*—at least, not so much. I wanted to plant cabbage after I had the potatoes out; but it got too late, so I wanted to sow turnips; but it will get too late. The potatoes are green yet; and that is not all; for had they been Ohios I could have got $1.50 per bushel; but now I can get only 50 cts.—quite a loss for one little blunder. But, hold on. I don't want to find fault with you. You can not help it; and although I suffer a little loss from the spurious Ohios, the Puritans make it up. They are the best potatoes I ever raised. There is not a small potato in a hill. They are about as large as a fist. They call forth exclamations of surprise wherever I roll them out of a basket. I shall want two barrels for seed this fall. I always think seed grown in a different soil from my own is better than that grown here. This you will certainly call only a notion of mine; but, never mind. JULIUS JOHANNSEN.

Port Clinton, O., July 28.

[Friend J., I am exceedingly obliged to you, and more especially for your injunction to have more charity; but I do not believe charity will cover all of it—about tomatoes, I mean. I am well aware of what you say, that tomatoes are very liable to sport. I, too, have found a potato-leaf plant where it did not seem possible that any of the seed had got into the ground. I have also found occasionally a plant with the dark compact foliage of the Champion; and I have thought that, if one should take almost any one kind of our best tomatoes, and grow it very largely, he would, say once in a thousand, or in several thousand, get a sport which, if developed, would give almost any of the other kinds. This accounts for the fact that most of our tomatoes have been brought out simultaneously by different people. There is one other solution of this state of affairs. If these other tomatoes have been grown even two or three years before on the same ground, there is liable to be some seeds that have lain dormant in the soil. Sometimes we sow tomatoes in the greenhouse, and only a part of the seed comes up. Well, every time that dirt is worked over, some of these seeds will germinate and grow, for perhaps two or three years. The lot of seed, however, that I mentioned, which was bought for pure Ignotum, showed perhaps ten per cent potato leaf. I do not think this was a sport. In regard to the Ohio potatoes, last spring they were so scarce that we advertised for them in our county paper. One lot was brought to our place, the owner declaring they were the genuine Early Ohio. But we discarded them on account of the appearance of the tubers. It is something I very much dislike to do, to buy seeds of any kind of somebody I don't know; and I am resolved to be, hereafter, prepared with potatoes, at least, of our own growing. I have never been humbugged when I have bought such things of our established seedsmen. It is only when I buy of obscure individuals. In order to keep seed potatoes on hand that we know are genuine, I have once or twice paid 50 cts. a bushel for potatoes in the fall, and sold them for ten cents in the spring, or threw them away—that is, I disposed of a *few* in that way. The only safe way is to put away *more* than enough; but in that case we must have profit enough to cover the loss of what we do not succeed in selling. I think we can supply you with Early Puritan next spring or even this fall. Friend J., and I am very much obliged to you indeed for your kind and clever way of excusing our blunders. We will try to remember when we have future deal with you.]

STRAWBERRIES; PREPARING THE GROUND, ETC.

I wish you could see those Haverlands you sent me July 8. Some have runners 12 inches long. I have raised berries for market a number of years, and have grown ten varieties. I think the Haverlands and Michel's Early are the best growers I ever saw. My half-acre of Crescent and Sharpless was hurt by late frost, but I sold 2000 quarts. I think you are right about clover sod for strawberries. The finest berries I ever raised were where I plowed under clover. The variety was Sharpless. The next best, I think, is a heavy crop of buckwheat turned under. In 1890 I turned under half an acre of buckwheat. This spring I put on a coat of manure. Oh my! the Jessie and Michel's Early! I never saw such thrifty plants.

Chillicothe, O., July 30. F. H. SEELING.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

OUR NEW DOVETAILED WINTER CASE FOR THE DOVETAILED HIVE; ALSO OUR ONE-STORY DOVETAILED CHAFF HIVE.

While the two-story chaff hive wintered bees successfully, it is cumbersome and expensive, and not adapted to out-apiaries or for general moving. We (Mr. Calvert, Mr. Warner, and myself) have been considering the matter a good deal, and after two years' experimenting we now find ourselves ready to offer the bee-keeping public an outside winter case, and also a one-story dovetailed chaff hive that is both light and portable, as well as cheap. We don't therefore propose to offer to beginners and others something we have not tried; and although the winter case differs in some slight details from the one we used with success for the past two winters, the essential principle has been retained.

The fact confronts all who have single-walled hives, and who are not disposed to winter in cellars or repositories, that they desire something which, at a slight additional expense, will convert their hives into double-walled abodes for bees during the winter. Again, there are other bee-keepers who winter indoors who wish something cheap and serviceable in the way of a protection to put over the hives after they are set out in the spring, and here it is.

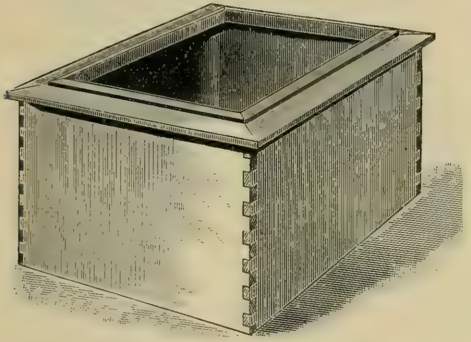


FIG. 1. DOVETAILED WINTER CASE.

This is simply a shell made of ⅜-inch lumber, dovetailed at the corners, and is large enough so as to leave 1⅛ inches space between the sides and ends, and deep enough to allow of a cushion 3 inches deep. To save the expense of a cover we contract, as it were, the top, with an ordinary chaff-hive water-table. This makes it possible to use a regular Dovetailed-hive cover.

Fig. 2 shows how the case is set down over the Dovetailed hive. Our experiments last winter demonstrated pretty clearly that a chaff cushion on top of the brood-nest is one of the things we can not very well dispense with. We need something to take up the moisture arising from the cluster, at the same time something that will tuck down around snug to the top edge of the hive. The cushion should be three inches deep, just large enough to fit down inside the winter case, and is to be set on top of the brood-frames with a Hill's device under as shown in diagram Fig. 3. This cushion, therefore, will be large enough to project over the sides of the inner hive about 1⅛ inches all around. The case is then slid over, and the cover that was on the single-walled hive is adjusted to the single-walled case. Well, then, you ask, how do you provide against the cold entering under the bottom of the case? To the bottom inside edges of both sides and ends is nailed ⅞-inch-square sticks. As the whole space to be taken up is 1⅛ inches, these sticks are padded the same as division-boards, with a roll of burlap (see Fig. 3). The outside winter case is then slid down so that it covers the whole body of the hive. The front end of the case is left so as to leave an entrance, the back end being let down a little lower, something of the style of a hat on the back of the head. All this provides for dead-air space around the sides of the hive and chaff packing above, which my experiments thus far in this locality say is enough. If any one doesn't wish to risk the dead-air space, he can pour in packing material before he puts on the cover, and before he puts on the cushion. This done, he can tuck in the cushion, when he has a packed hive.

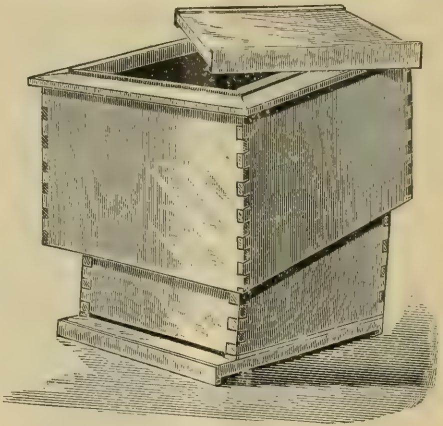


FIG. 2. DOVETAILED WINTER CASE.

The diagram below will make the matter a little planer. The position of the cushion and the padded square sticks is shown. The space between the two walls is 1⅛ inches. The space between the cover and the brood-frames is 3 inches.

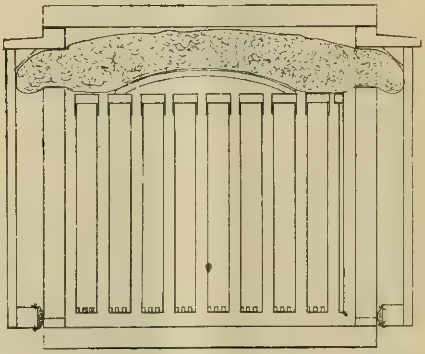


FIG. 3. SHOWING THE CROSS-SECTION OF OUTSIDE WINTER CASE, HIVE-CUSHION, AND PADDED STICKS.

This winter case is also wide enough to be set down over a ten-frame Simplicity or ten-frame Dovetailed hive, but, of course, it doesn't leave the same space between the sides, although that between the ends is the same, but in the ten-frame hive the chaff division-board is, of course, to be set down on the inside of the inner hive. We therefore have the same double-walled space that we have with the eight-frame hive, only we secure it in a different way.

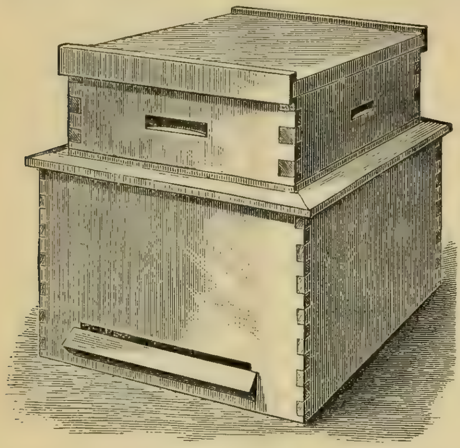


FIG. 4.—OUR PERMANENT DOUBLE-WALLED CHAFF-PACKED DOVETAILED HIVE.

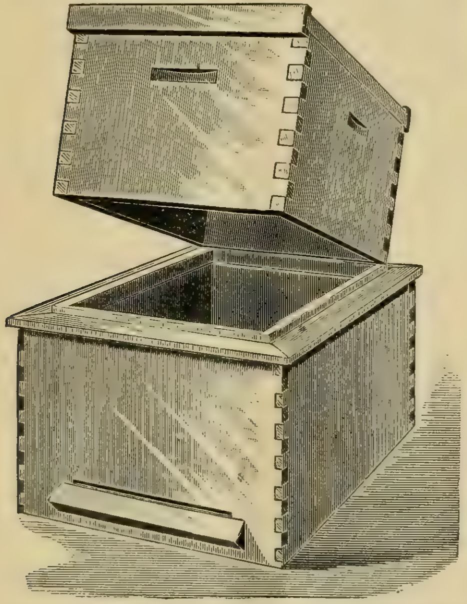


FIG. 5.—THE DOVETAILED CHAFF HIVE WITH AN EIGHT-FRAME SINGLE-WALLED DOVETAILED BODY FOR THE UPPER STORY.

It became evident to us that a one-story chaff hive is preferable to one made of two stories. First, to secure lightness; and, second, that the same may be interchangeable with the Dovetailed hive or any of its furniture. The hive above secures both of these advantages, and at the same time it weighs but a trifle more than the permanent single-walled hives. It is made of ⅜-inch lumber, also dovetailed at the corners. It resembles somewhat our former one-story chaff, which we have changed as shown above. It now takes Dovetailed supers for Dovetailed hive, instead of Simplicity supers and furniture. As the latter now seems to be going out of date, this change seems to be necessary. Now, the same dovetailed winter case is also a dovetailed shell to the permanent double-walled chaff hive, the inside hive being made of ⅜ lumber as well as outside. The inside width is 12⅛, and will take eight frames and a division-board with wedge. Accordingly, if any one should get the cases and afterward wish to make a permanent double hive, he can do so by getting the extra parts.

Figure 5 shows how this same hive may be made to take a full depth story. The water-table has a raised projection, so that the separate parts of the hive come together as square joints, a feature that is nowadays so much prized by bee-keepers; but there are some who prefer the telescopic feature for winter. We have therefore made a 7-inch cover of ⅜-inch lumber that slides over this raised projection. This cover is just large enough to take a cushion or a dovetailed super, the same as shown in Fig. 5, above.

The space between the walls is 1⅝ inches. There is also a double bottom and tarred paper to prevent rotting. The hive may be packed or not, as desired, and the whole weighs only 2 lbs. more than the single-walled hive with bottom-board. It will be observed that we have dispensed with the expensive corner posts, and use instead the cheaper dovetailed corners, which are equally strong. Instead of having the hive made of a lot of three-inch slats, the sides are made of one whole piece. This makes it much simpler to put together, and also makes the two separate walls as near air-tight as possible. The hive in inside dimensions is the same as the Dovetailed hive, and in *outside* dimensions it is 16⅞ x 23, and can be loaded into a wagon with almost as much economy of space as the single-walled hive. This makes it possible to secure in this hive all the advantages of the single-walled hive, with the additional advantages of a winter and spring hive. Such a hive *can* be carried into the cellar, the projection of the water-table affording an excellent grip to hold the hive by. Then the advantage in setting out a double-walled hive in spring, when the weather is so uncertain, will be apparent, but we intend this hive to be a successful *outdoor* winter hive.

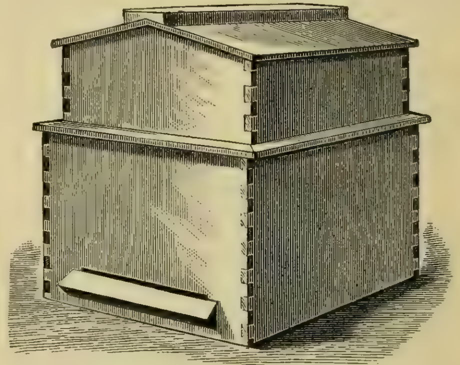


FIG. 6.—THE DOVETAILED CHAFF HIVE WITH ⅜-INCH TELESCOPIC COVER.

This hive is not an experiment. The same thing in the one-story chaff hive we formerly offered has given us excellent results for the past seven or eight years. The packing space between the walls is the same, so that we know we have retained the essential principle that goes to make a good winter hive, and that we are not putting on the public an experiment, but an old tried hive in a new dress.

OUR HOMES.

He that is faithful in that which is least is faithful also in much.—LUKE 16:10.

This has been one of my favorite texts for so many years, and I have talked on it so incessantly, perhaps some apology should be made for taking it up again. But I really think the lack of success in business, and the recent complaints from many quarters that farming does not pay, and other kinds of business do not pay, comes more from lack in the special line of our text than from any other one thing. In other words, the greatest foe of the farmer—yes, and the village mechanic too, is not the millionaires of our land, but the half-heartedness of the very people who complain. Our good friend W. I. Chamberlain has touched the matter up with some practical illustrations from real life with such wonderful vividness in the *Ohio Farmer* for Aug. 1st, that I have decided to copy his article entire, and here it is:

THE NON-EXPERTNESS OF VILLAGE EXPERTS.

"Mr. Hoot," said a student friend of mine to a village photographer, showing him a first-class city photograph, which had the fine shading and delicate finish of the real artist—"Mr. Hoot, I wish you would make our class photographs look like that."

"Ah!" said Mr. Hoot looking at the city photo. "Ah! if I only *could* make them look like that, *my gallery would be in Chicago*, not in Ames, and I should soon be rich!" That longing look showed that he is a rising man. Soon a small city, and then a large one, will get him. For the "room at the top" for experts and for those who "do the best they know how or can learn how," is usually in the city. And so the cities take our best experts and leave us ——?

Twenty-six years ago a village expert grained a part of my house. It is as good as ever today, and as fine in quality as the best city graining. He was a real expert, and in two years he was foreman, then partner, then proprietor of a painting, graining, and papering establishment in Cleveland. Many of those that remain as village experts lack not only skill, but push, enterprise, desire to excel and please.

"Alas! I could a tale unfold" of my experience with *real* experts and with *so-called* experts. I once hired a real expert to paper a number of rooms, and paid $3.50 per day and board and car fare from Des Moines to Ames. He averaged 30 single rolls per day; ceiling, wall, and border, fitting edge to edge, trimming both edges; and he left no "nasty mess" on floor and paint to be cleaned up. One day he hung *45 rolls* "just for the fun of it;" and to show what he could do on plain ceiling and good wall. I once hired a village "expert" at $2.50 per day. He averaged about 10 to 12 rolls per day, lapped the edges in the old-fashioned way, and left behind him a siege of housecleaning—paper pasted to the floors, and *tramped in*, mixed with *tobacco juice*.

A village "expert" once painted my blinds, and another, at another time, oiled them, both in my absence and while the house was vacant. Both left the slats *shut*, lapping upon each other to dry, instead of rolled wide open at right angles. The slats stuck as if glued. When we came to use the house we had to loosen each individual slat by hand or screw-driver, and with great care not to break them or pull the little staples, before they would roll. When my good wife tried to turn them for a long time one day to ventilate a chamber, without throwing the blinds themselves wide open, she at last made the somewhat unchristian or hyperbolical remark that she "would just like to wring those painters' necks!" I could actually have oiled the blinds in less time than it took to *unglue* them

A real expert once did some painting and kalsomining inside. He did not ask to have furniture or carpets removed or covered; and when I asked him how he dared risk it, he made the somewhat sarcastic remark, that when he "couldn't work without spattering and daubing he would quit the business." A village "expert" at another time daubed and spattered the hard-wood floors around the "mop-boards" so that the borders around the rugs had to be scraped with glass, and sand-papered, *longer than it took to paint the room*, before the borders were fit to be dressed with "Butcher's Boston polish" or "hard oil finish." The window glass was spattered and daubed too, so that it took much muscle and much cleaning soda to make them fit to be seen. I afterward told him about the floors. "Why, he supposed we would carpet them." I wanted to ask him if he supposed we would carpet the window glass, but forbore.

Then, too, the delays, mistakes, and cost! For example, on an excellent old wagon, 26 years old, one wheel collapsed, and a few days later another, showing the spokes to be brash. They had been put in new some six years before by a village expert. Inferior timber. When this second one collapsed I sent it and the two still unbroken, but evidently untrustworthy, to another village expert, with explicit instructions to fill *all three* wheels with new spokes complete, and set the tires. Well, next day, by mere chance I went to town and to the shop. He was *setting the tires with the old spokes still in*. He had "only spokes enough for one wheel, and the other two looked pretty good." "Did I leave it to his judgment?" "No." "Did I probably know what I wanted?" "Yes." So the wagon waited three days more until he sent to the city and got *just enough more spokes* to fill the two wheels, and of course I had to pay the express and "stand" the delay. Strange that I ever sent another job to him, but pretty soon I did—a lumber wagon-box for a new bottom. I was too busy to do it myself. "Yes, he would do it promptly. It would take only two hours." But not needing it I left it a full week, to be *sure* it should be done. Then I wanted it to drive ten miles for special sizes, elbows and connections of sewer-pipe for my main tile outlet that carries the water of some 50 acres. I went at noon for the big afternoon's drive. The box *had not been touched*. He "hadn't any lumber," and "could not get any planed at the mill." They "had broken the planer," etc. I felt like advising him *to keep on hand* enough dressed and seasoned lumber to make himself a coffin, or else grind his hand-planes enough to dress 33 feet of lumber on one side for a wagon-box bottom! I took the box to the other shop and had a new one complete. Last week I bought a new wagon, box, top box, spring seat, and brakes complete, for almost exactly twice what I have paid for repairs and improvements on the old one within two months! In one case I paid their own prices to village experts for retail piece work. In the other case I paid *my* price, aided by sharp competition, to a great concern of city experts, that turns out thousands of wagons each year. Retail and piece-work prices will soon ruin the farmer.

But I was speaking of the annoyance, carelessness, and delays in dealing with village experts. My driving horse (he works too) had lost a front shoe, running in pasture, and the other was loose. I sent him by a boy with a note stating in explicit terms that I wanted both front shoes set, and within three hours, as I needed him for a long drive. The horse came back with *one shoe set* and the other hanging clattering by two nails. I took him back myself at great inconvenience and delay. The "expert" pulled my note from his vest pocket *unread*. "The boy didn't say you wanted both set." "But the note did, and I will find a shop where they can find time to *find out* and *do* what I want."

Such things, actual recent occurrences, make one think the village experts do not want one's custom. There seems to be no effort to understand, accommodate, expedite, please, excel. And such experiences for years have made me gradually fit up what is, at last, pretty nearly my ideal of *the farmer's workshop*. There, in stormy weather or in sudden emergency, I can, and do, do almost all kinds of mechanical work except hot blacksmithing, and do it quicker and with far less annoyance than I can take or send the job (especially small ones) to town or get a village expert to do them, and oftentimes do them better and more thoroughly.

This shop with its tools and supplies of materials and conveniences, and the saving and convenience I find it to be to me, I will try to describe in the next number. The non-expertness of village experts is one of the "difficulties" of the farmer. It will be his "fault" if he does not either overcome or avoid it.

W. I. Chamberlain.

It would seem from the above as if wagon-makers are especially guilty in the line friend C. has marked out. About a year ago one of our heavy wagons broke down a wheel while we were helping to move some timber for the new railway. We sent the wagon to the shop, with instructions to put in none but the very best timber for spokes. We had the usual disappointment in getting it when promised; and, almost as soon as used, the same wheel broke down *again* under a very moderate load. It was sent back and repaired again, but we were compelled to pay full price right through. In fact, both bills for repairing the wheel were more than a new wheel would cost outright. The proprietor said he *knew it*, but it was always that way; and when I showed him a piece of one of the spokes he first put in, I ask-him if he called that lumber fit for spokes for a heavy wagon, and he candidly admitted that it was not, but yet refused to make any abatement, claiming that he was in no way at fault, because he used the *best lumber he had*. Now, this strikes one great and important point. The *average* village mechanic is very much averse to taking any responsibility or to making any reduction if his work amounts to nothing.

Another case occurs to me right here. I once employed a man to mend a wheelbarrow. The charge was $1.50. When I remonstrated he said he did not get quite his regular price per hour, even then. When questioned closely as to how he came to work so many hours on that wheelbarrow he said one of the steel pivots on which the wheel turned was bent, and he thought it ought to be straightened. In attempting to straighten it, however, the tempered steel snapped off, and it took him a long time to get the broken piece out, so as to put in a new one. Now, when he undertook to straighten the bent pivot he did it on his *own responsibility*, and I should say that it was his own job, for I employed him only to put a new handle in the barrow. As he could not understand, however, why he should be called upon to lose his time, I paid the bill. While I was talking with him I explained it by an illustration. In my hands were a lot of spoiled sections. They were made of beautiful white basswood; but the man who set the machine made a mistake. Said I, "My friend, here are a couple of thousand sections made wrong. It cost me at least $5.00. It is hard to lose so much, but I should be glad to sell the lot for 25 cts." He suggested that *I* could afford to do business that way, but *he* could not, because he was a poor man. Do you see the point, friends? I have been assuming responsibilities all my life in just this way, and it has not made *me* a poor man either. Do you not see that it verifies what our text tells us? People who rise, people who stand at the head of great lines of business, *have* to accept responsibilities. They are in the habit of standing in places of *terrible* responsibility every day of their lives. In asking about a recent railroad accident I was told that the engineer calculated on making his station with only one minute of time to spare. I was astonished, and inquired of a railroad man whether it was customary to run trains of cars with so little leeway (if that is the term) as only *one minute*. He said they did that, or very near it, "right straight along."

"But, my friend, where do they get *watches* that are so accurate that the officers all along the line can *know* that their timepieces do not vary more than that?"

"Well, I want to tell you, sir, that, at the present time on our great thoroughfares, they have *got* to provide themselves with watches that will agree with the standard time within a minute."

All these men are high-priced experts. If sickness or death, or any other accident, should prevent them from filling their places, a substitute would be provided, without any hitch or hindrance; and we have great railway companies that have trained men so perfectly for each appointment that they run trains daily for many years without single accident or loss of life.

Now, here in the first place we have a glimpse of the jewelers who sell watches and keep them in repair. Such watches cost a big price, and the man who repairs them must be steady and cool, and remember that the lives of hundreds if not thousands depend upon the fidelity with which *he* attends to little things. It is the same way with the engineer; it is the same way with the conductor; it is the same way with the train-dispatcher. Not only does their bread and butter depend upon their assuming responsibility, but the very lives of the great traveling public.

Of course, they get great pay, for such men are scarce. The world is full of people, of course, who say by actions if not by words, "Oh, well! I guess you had better get somebody else, if you are going to be so *very* particular as that;" and the consequence is, the whole world *does* get somebody else. They employ somebody who cares for consequences, and who values his reputation. Let us go back a little. If I were the village expert who painted all those blinds, when informed of it I would have paid friend Chamberlain damages, in order that I might learn better next time. If the village expert who spattered the floors and windows with his paint had any ambition he should also have made good his daubing, or paid somebody else for doing it. This other fellow that kept the wagon-shop, and put up a sign, and had to wait for wagon-spokes by *express* when he got a job, had better give up business and go and hire out to somebody at a low price. The same way with the man who hadn't any lumber, and could not get it planed at the mill. The blacksmith who put the note in his pocket without reading it should have said, "Mr. Chamberlain, I confess I have been very heedless and careless; and if that trifling piece of stupidity has put you out to the extent of a ten-dollar bill here is the money to make you good." Friend C. would not have taken the money, I assure you, but he would have accepted the will for the deed: and instead of going to some other shop with his work, he and the blacksmith would have been steadfast friends *for life*, and very likely friend Chamberlain would have had *another* funny story to be told in his irresistibly comic way, at the farmers' institutes as he goes from place to place during the winter time, meeting the farmers of our land.

The men who run these great factories, and turn out good wagons made of honest material for less than the village workman often charges for *repairs*, have built up their business by doing just what I have been advising. They commenced away back years ago, by standing between their customers and loss. They showed that they loved their neighbor as themselves by saying, "Look here, my friend, this was no fault of yours at all; it was a blunder of mine, therefore *I* and not *you* will pay all the penalty."

You may remember that I once (years ago) opened a shop and put up a sign when the boots on my feet were not paid for, and I hadn't money enough in my pocket *to* pay for them. I advertised in the papers that, when repairing was not done at the time promised, there would be no charge. I kept ahead for quite a while; but the time came when I could not keep up with *all* my promises. One customer waited two hours while I finished cleaning his watch. When he took out his pocketbook to pay me I told him there was no charge, because I had failed in having it ready at the time specified. He protested at once, with a remark something like this: "No, no, my young friend. You have done me a good nice job, and did the best you could. Here; take your pay. It is true, I have been hindered a little, but this world is full of hindrances. Who ever heard of a mechanic undertaking to work for *nothing* because he got behind a little?"

Now, friends, that has been my experience from that day to this. Just as soon as you show this spirit in deal you make friends who will stand by you through thick and thin; and the majority of mankind will refuse to accept what you offer in a fair and generous spirit. The Bible is sparkling with these texts right in this line, besides the one at the head of our talk to-day. Just listen to a few of them: "Give, and it shall be given unto you;" "Cast thy bread upon the waters;" "Do good, and lend;" "He that findeth his life shall lose it: and he that loseth his life for my sake shall find it." Now, I wonder whether there is not some young man just starting in business who can catch inspiration from friend Chamberlain's talk to-day. Don't say you can't afford it. A young man once pied a form of type in our printing-office. In order to get the journal out on time he worked all night to make up for his mishap. When I offered to pay him for his night work he refused to take any thing. Did he lose money? Not at all. He was not a Christian *then*, but he became one *afterward*, and died trusting in the Lord Jesus Christ. Not only will such a course give us success and prosperity in this world, but, my friend, it oftentimes proves a stepping-stone to a *faith in* and an *appreciation of* the character of Jesus Christ, who first uttered the words, "He that is faithful in few things shall be made ruler over many."

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Good measure, pressed down, and shaken together and running over, shall men give into your bosom —LUKE 6: 38

WE see by the *American Bee Journal* that the North American Bee-keepers' Association is now incorporated, and a legal body, known to the law, with headquarters at Chicago. It is well.

FROM late experiments made in the apiary, we are fast coming to the conclusion that the horizontal wiring (wires drawn loose) is the best plan of wiring frames. It is not only the simplest and easiest, but it gives the best combs, and you can use either heavy or light foundation, and get good results from both.

CHARLES BIANCONCINI, who sends us imported Italian queens, writes he can not send queens to this country by mail successfully. About half of them, he says, die before arrival. We think if he adopts our export Benton cage he will meet with general success. We will send him one, with the request to return it with a queen in it at our risk.

WE have received samples of the Punic bees, from E. L. Pratt, of Beverly, Mass., in his very neat Benton mailing-cage. The bees are of a shiny black, and, so far as we have been able to judge from the sample sent, appear quite different from the ordinary black bees of this country—at least, a great deal more so than the Carniolans. We have ordered Mr. Pratt to send us a select tested queen, so that we may next year tell something about the bees and their qualities.

IT will be remembered that there was some complaint on the part of the affiliated societies of the N. A. B. K. A., that it, the parent society, was failing to fulfill the conditions of the constitution in not providing medals. The committee appointed at the last meeting, of which Mr. Newman was chairman, has the matter in charge, and now we see by the *American Bee Journal* the medals are being stamped. They are to be used by the local societies in bee and honey departments, and at fairs and expositions.

HIP, hip, hurrah! We are having success with the Doolittle queen-cell cups. Nine-tenths of the artificial cups are now accepted by the bees, and built out into large handsome cells. Without this plan we should be short, at this time of year, of cells for queen-rearing. If everybody has as good success as we are now having, it is going to be a great boon to bee-keepers, from the fact that we can breed all, or almost all, queens from a choice mother, the best queen in the whole apiary, instead of a dozen or two as we were obliged to do by the old methods.

HENRY ALLEY, in the *American Bee-keeper*, argues that black Carniolans will very speedily develop the yellow tendency in the race; and, by way of proof, he urges a trial of the experiment. He says that in-breeding of black Carniolans will develop, sooner or later, bees with yellow bands. While it is true, that two of the imported Carniolan queens we had showed a tendency toward yellow in their bees, yet it seems to us that, if Mr. Alley's theory were correct, there would be no such thing as black Carniolans at present, because the yellow tendency would, years and perhaps centuries ago, have obtained entire predominance and there would be no such thing as black Carniolans. As it is, most of the Carniolans we have ever seen or read about have been black.

Our last importation of queens from Italy is entirely exhausted, except one breeding queen, which we must keep. Next lot of queens will not arrive until about the middle of September. We say this for the benefit of any who contemplate ordering of us. We shall be glad to fill orders next month when they arrive.

On page 669 friend Cook starts a question which has often come up in my mind. He says the worm is about three days in spinning its cocoon, and that the thread of silk is one continuous fiber. About how long is this fiber, and how in the world does this feeble, sluggish worm manage to spin a fiber of such length in only *three days?* May be this thing is fully described in some of our books; but I confess I have never been able to find it. I think it has been said, that the worm rolls around, and this winds the silk about its body from head to foot. If this is true, in order to make this prodigious number of turns every 24 hours I should think it would need a crank and pulley so as to make it spin like a buzz-saw. Now, you knowing ones need not laugh, for I suspect there are others just as ignorant as myself. A. I. R.

Dr. Miller proposes, or, rather, advises, the expediency of another name for the "nameless bee disease." It is a shame that this misnomer has gained all but universal acceptance on this side of the Atlantic, for designating a peculiar malady that affects bees. Perhaps we are responsible in a great measure for it. At any rate, with the concurrence and agreement of the editors of other bee-jounals, we propose to accept, as a better name, "bee paralysis" (*Bacillus depilis*). This is the name that is in use in England, I believe. By Cheshire it is called *Bacillus Gaytoni.* The termination *depilis* is descriptive, while *Gaytoni* is derived from a name—a Miss Gayton who called Cheshire's attention to it. We like *depilis* better, because it means *without hair* or *fuzz*, and this just exactly describes bees afflicted with *Bacillus depilis.*

Again we are successful in mailing queens to the islands of the sea. In June we sent two untested Italian queens in our large export Benton cages to the Sandwich Islands. After a journey of about 4000 miles, overland and on the Pacific Ocean, a customer writes us that the queens were received in excellent condition. But, oh dear! he lost them in introducing. We suggest to all those who receive queens from such distances, that they introduce them by giving them frames of hatching brood. This method is perfectly sure. It is a little risky to hazard ordinary methods of introducing when queens have been received from such great distances. We have not yet heard from the queens sent to Australia; but for the present we say, "Score another one for the Benton cage." By the way, the postage on these two queens was only *three* cents each; and the postage on the same cages to our nearest postoffice, four miles from Medina, would have been *five* cents each. Here is a little inconsistency in rates that our postal authorities should equalize. In the name of common sense, why can't we be permitted to send a queen by mail to a point *four* miles distant as cheaply as we can send it to a point *four thousand miles* distant? If the rates were reversed, there might be some reason; but as they stand, they are an anomaly.

Yesterday afternoon (the 13th), just as we had finished our work at the Shane yard, we saw a hive lying partly on its side. There had been a heavy wind and rain storm two days before, and we concluded that it had been blown over at that time. The hive contained Hoffman frames, fortunately; and when we came to examine it, what was the result? Why, nothing at all! The frames were inclined at an angle of about 45 degrees, but every thing was well, just as though nothing had happened. Now, suppose this hive had contained loose frames, what would have been the result? They would all have been jarred in together; brood would have been destroyed in consequence of the frames lying together in contact; combs would have been mutilated and disfigured, and many bees destroyed. Score another one for fixed frames. Although the storm had been terrific, there were no covers blown off. As we are not bothered with burr-combs, we use no enamel sheets. The consequence is, the covers are fastened down with propolis, and a light twist with a screwdriver easily removes them. Right here is where propolis serves a good purpose. It is far ahead of other sorts of clamps and castings for holding covers down. After replacing the cover you do not have to fasten it. The bees do it afterward for you.

DOCTORING WITHOUT MEDICINE.

I do not see but I shall have a new chapter in this matter. And if the grip that I have been having for the last two weeks is going to help me in studying up appliances whereby drugs and medicines may be dispensed with, I do not know but I rather (in one sense) rejoice in having the grip. After I had had it for three or four days I consulted one of the oldest and best physicians in Medina. I told him that I found it necessary to wear an overcoat and fur cap, even during August days, when the thermometer registered 85 in the shade. He asked me just one question: "Do you find that you are unusually sensitive to any sort of draft or chilly wind?"

"Well, I should think I *am* sensitive to drafts and chilly winds, doctor, especially if the wind happens to be in the north. Why, with more than my winter's clothing, as soon as a breeze starts up I involuntarily get behind the barn-door, or into some corner, before I attempt to even direct business."

He declared it was "grip" sure, and, after some more conversation he laughingly told me that he guessed I did not need any advice—that all I needed to do was to keep up the temperature by winter clothing, and to be *sure* that I did not get chilly. He suggested that quinine might *help* to keep up the circulation; but when I told him that I rather preferred overcoats to quinine, if it would do just as well, he said, "All right, go ahead with the overcoat."

Now, here is the result. Just as long as I keep warm enough to perspire sufficiently to keep my under-clothing a little damp, I feel pretty well. At night I keep bundled up in just the same way; but if I attempt to leave off my wraps, and my flesh gets dry, chills commence, and grip pains and something between neuralgia and pleurisy comes streaking along. Very likely different individuals are differently affected; but, my friend, just you try my plan of doctoring the grip without *medicine.* And, by the way, there are quite a few ailments along this line that yield quickly to bundling up until you perspire freely. There are some peculiarities of the treatment that I rather enjoy. One is, that I can drink all the cold water I please all day long, without any bad effect at all. It passes off with the perspiration of the body; my appetite is also fair, and I can eat almost any thing. The most inconvenient part of it is having people stare at me, wondering whether I am a crank or lunatic, with overcoat and fur cap, in August.

SPECIAL NOTICES.

STRAWBERRIES.

Under the influence of the recent heavy rains we have a full stock now of all varieties we advertise; namely, Bubach, Gandy, Haverland, Jessie, and Sterling.

AMERICAN PEARL ONION-SETS.

We have still a goodly quantity of these left, and now is the time to put them out—or, say, any time during this month and next. Remember, unlike the new onion culture the work is all done in the fall, and the onions are very much earlier than even those planted in the greenhouse and started out in the spring. For prices, see page 614 of our last issue.

EARLY PURITAN POTATOES FOR SEED.

A good many like our friend Johannsen (see page 682) have found it advisable to purchase their seed potatoes in the fall. Of course, we can not tell what prices will be in the spring compared with the present time; but as a rule, prices are much higher about planting time. For the benefit of those who would like to lay in Early Puritan, we offer them for 60c a bushel, or 75c if packed in the new slatted bushel boxes. Price per barrel, $1.75.

PRICE LIST OF DOVETAILED WINTER CASES.

On another page you will find an illustrated article describing our new "dovetailed winter case," which please read and then note the following prices. The winter case, as in Fig. 1, includes the four boards forming the body, four pieces forming the rim, and four ⅜-inch-square pieces for the lower edge. The chaff cushion and padding, as shown in Fig. 3, when sent put up, include chaff; but in flat, the cushion is sewed up ready for filling, and the strips of burlap or cotton are included to make the padding, but no chaff is included. For ten-frame hives not over 16 inches wide, outside measure, the same winter case can be used, without the sticks and padding on the side.

NAME AND DESCRIPTION.	Nailed and p'nt'd each	In flat each	In flat 10.	W'ght of 10
Dovetailed winter case	.50	.40	3.50	80 lbs.
Dovetailed chaff cushion and padding..................	.25	.20	1.50	5 "
Winter case with cushion and padding complete...........	.75	.60	5 00	85 "
Dovetailed telescope cover, shown in Fig. 6..............	.35	30	2 50	40 "
Rims for winter case		.12	1.00	20 "

DOVETAILED CHAFF HIVES.

By adding to the winter case a ⅜-inch inside body 8¾ inches deep, with double bottom and tarred paper, you have the material to complete the Dovetailed chaff hive as shown in Fig. 4, where a super and cover are also added. This makes the simplest and cheapest winter hive ever offered for sale. By adding to the price of the regular Dovetailed hive as listed, page 21 of our price list, 75c each nailed, 50c each in flat, or 40c each in lots of five or ten in flat, you get the price of the Dovetailed chaff hive complete, in the same combinations. The price of the separate parts will be as follows:

NAME AND DESCRIPTION.	N'ld and p'd each	—In flat— each	5	10	W'ght of 10
Dovetailed chaff hive, no cover or furniture..	1 20	.80	3 50	6 50	150 lbs.
Inside body with bottom, ⅜ inch thick		.25	1 10	2 00	40 "
Outside bottom ⅜ inch with tarred paper and supports.		.13	55	1 00	30 "
Outside body with sticks, no rims		.30	1 40	2 50	60 "
Rims for dovetailed chaff hive or winter case..........		.12	55	1 00	20 "

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

75 hybrid queens for sale at 30 cts. each, 50 cts. for selected. Most are clipped and young.
CHARLES H. THIES, Steeleville, Randolph Co., Ill.

Nice hybrid and mismated Italian queens, 25 cts. each.
T. H. KLOER,
426 Willow St., Terre Haute, Ind.

I have 30 nice Italian queens, but mismated. They are nearly all extra fine, and part of them almost pure. Price 50c each.
P. C. GRESS, M. D., Atchison, Texas.

Six mismated Italian queens for sale at 35c each, and 6 hybrid queens at 25c each.
LEWIS WERNER, Edwardsville, Ills.

I have 20 fine hybrid queens to ship by return mail at 35c each, and guarantee safe arrival.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

A few hybrid queens for sale at 20c each.
LLOYD SECHRIST, Box 42, Pleasant Home, O.

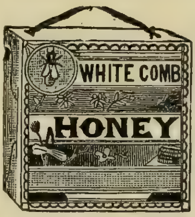
Hybrids at 20c, and mismated Italians at 25c; most of them from imported stock.
C. G. FENN, Washington, Conn.

Six choice mismated young Italian queens, 20 cts. each.
F. C. MORROW, Wallaceburg, Ark.

STRAWBERRY GROWERS!
Try the Enhance. Very large, productive, and good shipper. Perfect flower. Begins to ripen as soon as Crescent; holds out with Gandy. Plants, postpaid, $1.50 per doz.; Haverland and Bubach, 75c per 100. Address 16-17d
JACOB GUISINGER, Ada, O.

BY RETURN MAIL, 400
Golden Italian Queens. Tested, $1.00 each; untested, 70c, 3 for $1.80. HIVES, SECTIONS, FOUNDATION, and all BEE-KEEPERS' SUPPLIES kept in stock. Catalog free. JOHN NEBEL & SON, High Hill, Mo.

PASTEBOARD BOXES, OR CARTONS.



Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain........................	2	.20	.60	2.75	5.00
1-lb. carton, printed one side, one color, name and address............			.90	3.50	6.00
1-lb. carton, printed two or three colors, one side.........................			1.00	3.75	6.50
1 lb. carton, printed one color on both sides, name and address...........			1.00	3.75	6.50
1-lb. carton, printed two or three colors, both sides........			1.10	4.00	7.00

We can no longer furnish the lithograph labels, and printing on the box in two or three colors is cheaper and more tasty.

It sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 75c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, MEDINA, O.

BEE-KEEPER'S GUIDE.

16TH THOUSAND JUST OUT.

Plain, Practical, Scientific. Every farmer and bee-keeper should have it.
PRICE REDUCED TO $1.00. Liberal discount to dealers. Address 8-18db

A. J. COOK, Agricultural College, Mich.
Please mention this paper.

Punics. Apis Niger. Punics.

The most wonderful race of bees on earth. Full description of these bees with prices of queens, full colonies and nuclei, in the August (1891) American APICULTURIST. Sample copies free. Address
15tfdb **HENRY ALLEY, Wenham, Mass.**
Please mention this paper.

FALL PLANTS HATCHING AND FALL PLANTING PAYS. Brown and white Leghorn, Plymouth Rock, and Black Minorca Eggs, $1.25 per 13. Strawberry plants, 100, $1; 1000, $3.50. Raspberry plants, 100, $1.50; 1000, $5. Illustrated circular free. GEER BROS.. ST. MARYS, MO.
Please mention this paper.

BEE - HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.
LEAHY M'F'G CO.,
14tfdb ***HIGGINSVILLE, MO.***
Please mention this paper.

FOUNDATION & SECTIONS are my specialties. No. 1 V-groove Sections at $3.00 per 1000. Special Prices to dealers. Send for free price list of every thing needed in the apiary.
M. H. HUNT,
1tfdb **Bell Branch, Mich.**
☞ In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.
NOVELTY CO.,
6tfdb **Rock Falls, Illinois.**
☞ In responding to this advertisement mention GLEANINGS.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.
FOUNDATION is Our Own Make.
F. A. SALISBURY.
In writing to advertisers please mention this paper. 4tfdb

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.
M. S. ROOP, 520 East Broadway,
6-17db **Council Bluffs, Ia.**
☞ In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅛x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.
A. I. ROOT, Medina, O.

On Their Own Merits.

I am making a specialty of breeding **Golden and Albino Italian Queens.** My **five-banded bees** are equal to any as honey-gatherers, and they are the most beautiful and gentlest bees known. Warranted queens, May, $1.25; six for $6; after June 1, $1; six for $5. Satisfaction guaranteed. I have a few 3-banded tested queens at $1 each.
CHARLES D. DUVALL,
9tfdb **Spencerville, Montg'y Co., Md.**
Please mention this paper

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted. **ECKERMANN & WILL,**
Bleachers, Refiners, and Importers of Beeswax,
5-16db **Syracuse, N. Y.**
☞ In responding to this advertisement mention GLEANINGS.

WE WILL BUY YOUR OLD COMBS.
F. A. SALISBURY, SYRACUSE, N. Y.
Please mention this paper. 14tfdb

Tested Italian Queens.

By return mail, $1.00 each. Hybrids, 20c; 6 for $1.
J. A. GREEN, Dayton, Illinois.
Please mention this paper. 12tfdb

FIVE-BANDED GOLDEN RED-CLOVER BEES.

If you want bees that will work on red clover, try one of our 5-banded queens. Queens in August, untested, 75 cts.; ½ doz., $3.60; tested, $1.50; select, $2.00; the very best, $4.00. Descriptive circular free.
LEININGER BROS.,
10tfdb ***FT. JENNINGS, OHIO.***

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-ftdb Successors to B J. Miller & Co.,
Nappanee, Ind.
In writing advertisers please mention this paper.

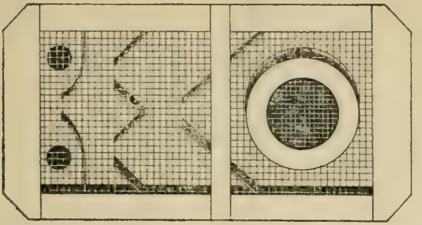
THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	***Edited by W.C.G.Peter.***
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.
☞ Please mention GLEANINGS.

The Latest and Best Bee-Escapes!



The "New Dibbern" and "Little Giant."

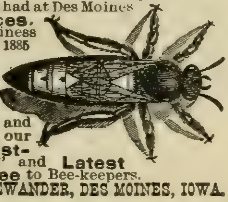
Two entirely new escapes just out. They work rapidly, and no bees return through them. They ventilate the super, and all parts can be seen and instantly cleaned. Satisfaction guaranteed or money refunded. 16-17d

Prices, by mail, either pattern, 20c.
" " " per dozen, $2 25.
No patents. Discounts to the trade.

C. H. DIBBERN, Milan, Ill.

Please mention this paper.

Western Bee-Keepers' Supply House



Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

3tfdb

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, 75 CTS., HYBRIDS, 25 CTS.

I re-queen my yard every year. None of the queens older than one year. T. H. KLOER,
16tfdb 425 Willow St., Terre Haute, Ind.

FIVE-BANDED GOLDEN RED-CLOVER BEES.

If you want bees that will work on red clover, try one of our 5-banded queens. Queens in August, untested, 75 cts.; ½ doz., $3.60; tested, $1.50; select, $2.00; the very best, $4.00. Descriptive circular free.

LEININGER BROS.,
10tfdb *FT. JENNINGS, OHIO.*

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BEE-HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
14tfdb *HIGGINSVILLE, MO.*

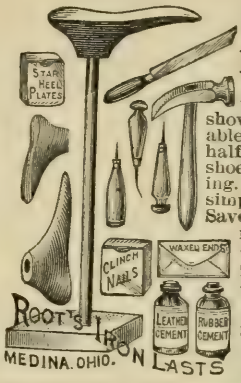
Please mention this paper.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅜x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

DON'T FORGET TO REMEMBER ROOT'S HOUSEHOLD REPAIRING OUTFIT!



This consists of the tools and materials shown in the cut. It enables one to do his own half-soling, rubber, boot, shoe, and harness repairing. No pegs needed—simply wire clinch nails. Saves time, trouble, wet feet, vexation, and expense. Any boy can use it. Sells like hot cakes. Agents wanted. The whole outfit, neatly boxed, 20 lbs., only $2.00.

Send for circular.

ROOT BROS., Medina, O.

☞In responding to this advertisement mention GLEANINGS.

STRAWBERRY GROWERS!

Try the Enhance. Very large, productive, and good shipper. Perfect flower Begins to ripen as soon as Crescent; holds out with Gandy. Plants, postpaid, $1 50 per doz.; Haverland and Bubach, 75c per 100. Address 16-17d

JACOB GUISINGER Ada, O.

BY RETURN MAIL, 400

Golden Italian Queens. Tested, $1 00 each; untested, 70c, 3 for $1.80. HIVES, SECTIONS, FOUNDATION, and all BEE-KEEPERS SUPPLIES kept in stock Catalog free. **JOHN NEBEL & SON, High Hill, Mo.**

FOR SALE.

One 40-horse-power steam engine and locomotive, or fire-box boiler, in good order. Price $500 on cars here. 16-17-18d

T. A. POTTS, Martinsburg, W. Va.

STRAWBERRY GROWING

A CERTAINTY AND A PLEASURE

By growing the ENHANCE, a new and well-tested sort, succeeds everywhere. Most reliable, most productive, largest shipping and all-purpose berry extant. Send for description and price.

16-17d *HENRY YOUNG, ADA, OHIO.*

Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.

NOVELTY CO.,
6tfdb **Rock Falls, Illinois.**

NEW FACTORY.

No. 1 Sections, $3.50; No. 2, $2.75. Fine Comb Foundation a specialty.

M. S. ROOP, 520 East Broadway,
6-17db **Council Bluffs, Ia.**

☞In responding to this advertisement mention GLEANINGS.

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J. STAUFFER & SONS,
16-ftdb Successors to B J. Miller & Co.,
Nappanee. Ind.

In writing advertisers please mention this paper.

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Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. Scoven,
12tfdb Kokomo, Ind.

WANTED.—To exchange pure Scotch collie pups for tested Italian queens. 12tfdb
N. A. Knapp, Rochester, Lorain Co., O.

WANTED.—All the names of persons running apple-driers. Will pay liberally for same.
W. D. Soper & Co., Box Makers,
15-18db Jackson, Mich.

WANTED.—To exchange a foot-power saw, almost new, and a printing-press, 4½x7½, also a press 7x11, for honey. A. D. Ellingwood,
16 17d Berlin Falls, N. H.

WANTED—To exchange apiary of 160 colonies, with every thing needed in the business—first class and in first-class location—for land, city lots, mdse, or offers. To those meaning business I invite the closest inspection of my outfit and location.
17-18d H. L. Graham, Letts, Ia.

WANTED — To exchange two printing-presses, type, etc. Want honey, Barnes saw, foot-power press, or body type. Write for printed list of articles to exchange. 17tfdb
Model Stamp Works, Shenandoah, Ia.

WANTED.—To exchange fruit-tree or ornamental shrubs for a copying-press for letters, a safe, or a shotgun. Geo. Gould & Son,
17d Villa Ridge, Ill.

SALE OR EXCHANGE.—Catalpa Kœmpferii, 1 year old, Marlboro, Cuthbert raspberry, curled-leaved Parsley seed.
17d F. J. M. Otto, Sandusky, O.

WANTED.—To rent or purchase an apiary of one or two hundred colonies in California or Arizona. A. Carder, Hebron, Boone Co., Ky. 17-18d

For Sale.
PORTABLE ENGINE AND BOILER,
4 HORSE POWER.

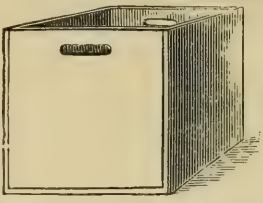
In good condition. Address

Lowry Johnson, Masontown, Pa.

Manufacturer Utility Bee Hives, Smokers, and Feeders. 17tfdb

POTATO-BOXES.

GALVANIZED BOUND.



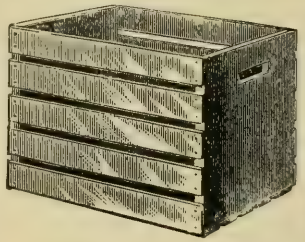
(TERRY'S).

These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price, nailed up. 25 c each; 10, $2.25; 100, $20.00.

In the flat, including nails and galvanized iron, Per pkg. of 1 doz., 2 nailed and 10 packed inside $2.10; 10 pkgs., 5 per cent off.

SLATTED POTATO-BOX



As the pieces of which the above are made are mostly from remnants of basswood used in making sections, we can furnish them nailed up for 20 cents each; 10 for $1.85; 100, $16.00. Material in the flat, including nails, in packages of 12 boxes each, at $1.50 per package, and each package includes *two* of the 12 boxes nailed up, complete. Ten pkgs., 5% off.

Please be careful in ordering to say whether you want the *galvanized bound* or the *slatted* boxes.

A. I. ROOT, Medina, O.

Black and Hybrid Queens For Sale.

75 hybrid queens for sale at 30 cts. each, 50 cts. for selected. Most are clipped and young.
Charles H. Thies, Steeleville, Randolph Co., Ill.

I have quite a number of nice mismated Italian queens which I will sell for 40 cts. each. Send now.
A. D. Ellingwood, Berlin Falls, N. H.

KIND WORDS FROM OUR CUSTOMERS.

I received the Doolittle wax-extractor ordered from you; and after giving it a fair trial I must say it gives entire satisfaction, and I recommend it to all those wishing a labor-saving implement.
Plaquemine, La., Aug. 7. Ignace Tullier.

Gleanings is just received, dressed in its new cover. Changes are not always for the better, but I do think your designer has this time given you a cover that, as the "Vassar girls" say, "is just splendid." What more can I say? As to contents, keep it just as it is. "Variety is the spice of life," and whoever finds fault with the price is not worth noticing. Go on as you have begun, and may the Lord continue to bless you in your work.
No. Attleboro, Mass., Aug. 5. Jos. E. Pond.

CONVENTION NOTICES.

The Central Michigan Bee-keepers' Association will be held at Pioneer rooms, Capitol, on Wednesday, Sept. 16, at 9 A.M. All are invited. W. A. Barnes, Sec., Lansing.

HONEY COLUMN.

CITY MARKETS.

Albany.—*Honey.*—We have received, up to date, 300 cases of comb honey. Owing to extreme hot weather for the past few days demand has been very light; but we look for much better trade the fore part of September. From advices received, the crop in New York State will be very large, and prices not as high as last season. We quote: Fancy white, 1-lb. sections, 16; fair to good, 14@15; 1½-lb. sections, a cent less; buckwheat, 11@13. Extracted, light, 7@8; dark, 6@7. **Chas. McCulloch & Co.,**
Aug. 22. 393, 395, 397 Broadway, Albany, N. Y.

Philadelphia.—*Honey.*—We do not quite agree with some of your correspondents in regard to the present and coming prices of honey being weak and depressed, but think that honey will not be interfered with by other sweets being plentiful and lower priced, as people who buy honey will not take any substitute on account of price. We have orders now, at prices very little if any lower than last season, and have a large outlet for the goods. We shall be glad to receive consignments, and guarantee to get best market rates, and remit promptly; or, if preferred, we will advance two-thirds of the value in cash. We quote prices: Fancy white, put up in neat boxes, 1-lb. caps, 16@18; 1-lb. white, 15@16; 2-lb. white, 13@14. Buckwheat, 10@12, as to style put up. Extracted, 7@8. For basswood, clover, or yellow, 7@7¼. Fall flowers or southern, 6@6½. **E. J. Walker,**
Aug. 19. 31 South Water St., Philadelphia, Pa.

Boston.—*Honey.*—New honey is coming on the market from Vermont, and is certainly as fine as we have ever seen. It is starting in at from 15@16, and selling fairly well considering the extremely hot weather. We think it is a mistake to market new honey before Sept. 1; but as others are sending in their honey to this market, we, of course, have to have a little to keep along with the demand. Extracted, 6@9. *Beeswax*, none on hand.
Aug. 21. **Blake & Ripley,**
Boston, Mass.

St. Louis.—*Honey.*—There is very little of change to report. Comb in good supply, but light demand at 10@13c according to quality. Strained and extracted at 5½c in barrels, 7c in cans.
D. G. Tutt Grocer Co.,
Aug. 21. St. Louis, Mo.

Columbus.—*Honey.*—White-clover honey very scarce; nice stock in one-pound sections would bring 18@20. No. 2 stock would meet with good sale at 15c. No extracted wanted in this market.
Earle Clickenger,
Aug. 17. 121 S. 4th St., Columbus, O.

Cincinnati.—*Honey.*—There is a plentiful supply of most kinds of honey, with a fair demand. Extracted honey brings 5@8 on arrival. Comb honey 14@16 for best white in a jobbing way.
Beeswax.—Demand is fair, at 23@25 on arrival, for good to choice yellow. **Chas. F. Muth & Son,**
Aug. 18. Cincinnati, O.

Kansas City.—*Honey.*—Demand light; supply light, but sufficient for the demand. We quote: 1-lb. white comb, 15@16; 1-lb. dark, 10@12. Extracted, white, 6½@7; dark, 5@6. *Beeswax*, 22@25.
Aug. 15. **Clemons, Mason & Co.,**
Kansas City, Mo.

St. Louis.—*Honey.*—Our honey market is dull on account of the low price of sugar. Extracted, Southern, in barrels, dark, 5c; choice light, 5¼@5½; white-clover in small cans, 5 to 10 lbs., 7@8; kegs, 6½. Comb honey, dark, 9@10; fair, 11@12; choice white-clover, 13@14. *Beeswax*, prime, 25½; burnt and greasy, half price. **W. B. Westcott & Co.,**
Aug. 13. St. Louis, Mo.

San Francisco.—*Honey.*—Honey remains very firm, and owners are asking higher prices. The crop is a great deal smaller than for years. We quote: Extracted honey, 5¾x6; 1-lb. frame, 12@14; 2-lb., 9@11. *Beeswax*, not plentiful, and selling at 24c. **Schacht, Lemcke & Steiner,**
Aug. 22. San Francisco, Cal.

New York.—*Honey.*—New crop comb honey is now arriving. We quote for the present: Fancy white 1-lb. sections, 15@16; 2 lbs., 13@14; fair white, 1 lb., 13@14; 2 lbs., 12c. No buckwheat comb in the market as yet. Extracted in good supply, demand limited. We quote: California, 7@7¼; basswood, 7@7½; orange bloom, 7@7½. Southern, common, 65@70c per gal.; choice, 70@75. *Beeswax*, very dull, 25@26c. **Hildreth Bros. & Segelken,**
Aug. 27. 28 & 30 West Broadway, New York.

Detroit.—*Honey.*—Best comb honey, 13@14. Extracted, 7@8.
Beeswax, 26@27. **M. H. Hunt,**
Aug. 19. Bell Branch, Mich.

For Sale.—800 lbs. white honey in 1-lb. boxes at 14 cents per lb., delivered at R. R.
Wm. Van Auken, Woodville, Jeff. Co., N. Y.

For Sale.—6000 lbs. of white-clover and basswood honey, somewhat colored with honey-dew, in 24-lb. cases, 1-lb. sections, delivered free on board cars at Dixon at 10½c per lb. **E. Baer,** Dixon, Lee Co., Ill.

For Sale.—6 tons alfalfa and sweet-clover honey in 60-lb. cans, 5c by the ton. Must sell.
A. B. Thomas, Payson, Utah Co., Utah.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address **E. Lovett,**
11tfdb San Diego, Cal.

Honey, Beeswax, Etc.

We are now in position to receive honey and beeswax on consignments, and to obtain best market prices for comb and extracted honey. Last year we could have disposed of as much again honey as we received, and our outlet this year will be still better. Correspondence solicited.

CHAS. ISRAEL & BRO.,
110 HUDSON ST., N. Y.
Dealers and Commission Merchants in Honey, Beeswax, Maple Syrup, Sugar, etc. 16tfdb
Please mention this paper.

A 6-HORSE-POWER ENGINE AND BOILER
For sale at a bargain, or will trade for comb honey.
17tfdb Address J. A. ROE, Union City, Ind.

SPECIAL NOTICE.

50 colonies of Italian bees for sale. They are in first-class condition; hives chock full of bees and honey. Also a fine lot of choice queens for sale. Not going out of business, but shall continue as ever to fill orders for any thing in our line of trade. For full particulars address 17-18d.

J. M. YOUNG,
BOX 874. PLATTSMOUTH, NEB.

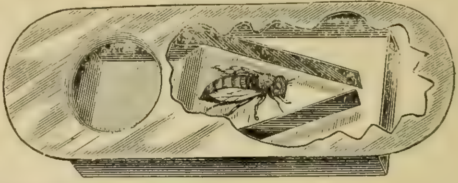
Perfection Winter-Cases, with tin roof, for the next 60 days, complete in flat, 75 cts.; made up, $1.25; 10 per cent off on orders for 5 or more. 17tfdb
HILL MFG. CO., BOX 120, DENNISON, O.
Please mention this paper.

N. A. KNAPP, Rochester, Lorain Co., O.,
HAS FOR SALE
50 STRONG COLONIES OF PURE ITALIAN BEES,
500 WHITE AND BLACK FERRETS.
Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb
Please mention this paper.

100 PURE ITALIAN QUEENS

For the next 30 days will be sold as follows: Tested queens, $1 each; untested, 70c each; 3 for $1.75; 5 or more, 50c each. All queens bred from select imported and home-bred queens. Safe arrival guaranteed. **D. G. EDMISTON,**
15-19d **Adrian, Lenawee Co., Mich.**

ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. W. Z. HUTCHINSON, Flint, Michigan.



Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**

In responding to this advertisement mention GLEANINGS.

A glimpse of our Factory, now making carloads of **Dovetailed Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives**, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

In responding to this advertisement mention GLEANINGS.

I MAKE THE

Benton Shipping and Introducing Cage

in two styles, at $10 00 and $20.00 per 1000. I am sending them all over the country. The largest queen-breeders are using them, and are enthusiastic in their praise. Send your order now, and get 5 per cent discount from above prices. A full line of

BEE-KEEPERS' SUPPLIES

always in stock. Catalogues free. 17-21d

C. W. COSTELLOW, WATERBORO, YORK CO., ME.

In writing to advertisers please mention this paper. 3-8db

FOR SALE! Italian bees bred for business and beauty combined, for only $3 (7-frame Root hives), if sold by Sept. 15. Any number from 1 to 60. Guaranteed free from disease. Do not miss a good chance for a bargain. 17d

W. V. MOOREHOUSE, LAFAYETTE, IND.

Please mention this paper.

Apiary and Storeroom for Sale.

In Central Iowa, 80 colonies Italian bees in modified 10-frame L. hives, and all necessary modern implements. A good supply of white clover, basswood, and a great variety of other bee-pasturage. No large apiary within ten miles; plenty of room for out-apiaries. Also a good location for a store or creamery. A good house with 12 rooms, new barn, 36x42 feet; good well and cistern; 20 acres of land, 3 acres used for raising truck, the rest for pasturage; all fenced with hog-tight fence. A fine lot of young basswood and other kinds of timber growing; ¼ mile from school and Sunday-school. Reason for selling, old age and poor health. For further particulars, address W. R. H., 17-19 21d

St. Anthony, Marshall Co., Ia.

Please mention this paper.

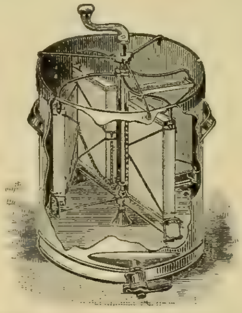
YELLOWEST ITALIANS.

My bees are the brightest and gentlest bees, and for honey-gatherers are equal to any. Send 5 cts. for sample and be convinced. One queen by mail, 75c.

25 tested Italian queens one year old, 75c each. These are fine ones, so don't miss this chance. Untested queens, August and September, 75c.

J. F. MICHAEL, German, Darke Co., Ohio.

Please mention this paper. 11-17db



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.
CATALOG FREE

5tfdb Please mention this paper.

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

☞In responding to this advertisement mention GLEANINGS.

16 SWARMS OF GOLDEN ITALIAN BEES FOR SALE at $3 per colony; all on wired L. frames, built from foundation in chaff hives.

15-16-17d ***T. S. THOMPSON,***
Box 240. Blairsville, Indiana Co., Pa.

UNDOUBTEDLY THE BEST

Time to order, for the best selection, is now.

THE BEST IS THE CHEAPEST.

Stock first-class. Rare and choice Small Fruits, Beautiful Roses, Shrubs. A specialty in Grapevines, Hyacinths, Tulips, Crocus, Narcissus, *beautiful Scillas*, Azaleas, Rhododendrons, etc. List free.

THEODORE JENNINGS,
P. O. BOX 69. PORT CHESTER, N. Y.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XIX. SEPTEMBER 1, 1891. No. 17.

STRAY STRAWS

FROM DR. C. C. MILLER.

LINDEN is a better name than *linn* or *basswood.*

SUPER-CLEARER is what our English cousins call a bee-escape. Appropriate.

PLEURISY-ROOT is so highly spoken of as a honey-plant, why doesn't GLEANINGS give us a picture of it?

Popular Gardening says: "We believe bees are a good thing, and a number of colonies should be kept in or near every orchard."

PORTER'S ESCAPE is a good thing to put under a pile of supers with a little tent on top. It accommodates those bees which have a downward tendency.

I HAVE HOPE of A. I. Root. When a man cares as much as he does for a bed of portulaca, there's something of good in him. Some day he'll go crazy over roses.

THE NAMELESS DISEASE (bee paralysis) is said to be more plentiful this year, but, strangely enough, I haven't seen a single case, although plentiful in previous years.

THAT NEW TITLE-PAGE OF GLEANINGS is a gem of art. For solid wear, however, month after month, nothing equals a very plain title-page with little besides the title.

HASTY says he is "sour on conventions." Take some saleratus, friend Hasty. A man who can write with so much good nature ought to be able to sweeten a whole convention.

THE *British Bee Journal* is making arrangements to send, post free, a packet of naphthaline sufficient for any single apiary, to be used as a preventive of foul brood, at a cost of twelve cents.

SWEET CLOVER comes a little too early, beginning right at the height of white clover. That which was cut before blooming does better, blooming in good shape after white clover is gone.

W. S. HART seems afraid I don't fuss enough with bees. Bless your heart, friend Hart, don't worry. Till swarming is over I go through every colony about once in ten days. I wish I didn't need to.

THE *Review* says: "The *Apiculturist* for August is but little more than a great big booming circular for the business of E. L. Pratt and H. Alley." Now look out for the *Api.* saying, "The *Review* for September is but little more than a great big booming circular for the Heddon hive."

I WONDER if the fur cap that friend Root wears for the grip in August is the same that he wore to bed with him when I slept with him at the Chicago convention. But he took his boots off.

L. STACHELHAUSEN, in *Apiculturist,* combats the idea that bees are natives of warm climates, and maintains his ground with vigor. He thinks it more reasonable to believe them natives of Northern Germany.

SWEET CLOVER, says a writer in the Omaha *Bee,* is supplanting the wild sunflower in the neighborhood of that city, and he becomes poetically eloquent in speaking of the beauty and fragrance of the new comer.

EDITOR NEWMAN thinks I "don't know" that I'll have a "better crop than for years." May be I ought to have said "a better crop than for a year." Anyhow, when he, an editor, doesn't know, how should I?

CUCUMBERS don't seem to amount to any thing, so far, this year. At least, they don't do more than to supply what the bees use daily, without allowing any surplus. If they can't store any from 400 acres, I doubt whether they would from more.

THE PUNIC VIRGIN QUEENS I received from England were safely introduced. Then one of them came up missing—probably on her wedding-flight. The other is laying nicely, and I am waiting with interest to see what half-blood Punics will be like.

CABBAGE, as generally cooked, needs the stomach of an ostrich. Get your folks to try it this way: Chop it up and boil; pour off the water in which it was boiled, then dress with cream, butter, pepper, and salt. Cooked thus, a dyspeptic can make a whole meal of it.

TO RAISE HONEY successfully and prevent swarming, we need, first, to prevent drone-rearing; secondly, to prevent drone-rearing; third, to prevent drone-rearing. One frame full of drone comb will furnish all the drones that are needed for a full apiary of 100 colonies.—Dadant & Son, in *Review.*

THAT DRESS REFORM has every appearance now of becoming fashionable. Speed the day! Think of the dear women getting down from fourteen articles of dress to four, and being able to go the store and buy a suit ready made, just like a man, instead of several half days spent at a dressmaker's, standing up till they faint away!

HORSE-SHOES cost you how much a year? Well, they don't cost me much, and my horse's feet are healthier for it. The hind feet are never shod, unless in icy winter times. Then a full set all around, well steeled—plugged, they call it; the rest of the year, barefoot all around, unless the feet get tender, and then a pair of tips in front only, at a cost of 15 cents per foot. These tips are merely old shoes with the heels cut off and tapered down so the horse's heel rests on the ground. It's a sort of cruelty to a horse to make him wear a hard, heavy piece of iron when traveling over the nice soft ground that would feel so cool and comfortable to his feet.

White lettuce, *all* white, friend Roo,t I don't believe you could ever reach. There is a beautiful foliage geraneum, *Madame Salleroi*, having some of its leaves pure white—a beautiful thing. I tried a number of times to root a slip of the pure white, but failed every time, although partly green slips root easily. Then I took an established plant with a strong root, and pulled off all the green part, so as to have a white plant ready rooted. Do you believe, the whole thing died, root and all. There must be some green to keep up life.

A BEE-HUNT WITH A SEQUEL.

SOME FUNNY EXPERIENCES, AS RELATED BY J. P. ISRAEL.

John and I went out on a bee-hunt. He had the fever bad. He said he wanted an apiary, even if it was only one hive. He was a great, strong, broad-shouldered fellow who could almost fell an ox with a single blow of his great fist. But his heart was great too—big enough to embrace all humanity. Nothing did him so much good as to do a kindness to any one. He would stop a plow in the field to lend a team to a poor neighbor, and even send a team and man to do the plowing. But he was quick to resent an injury or avenge a wrong. John was no fool either. He knew enough to know that he was not somebody else.

John had found the bees some days before, about five miles from his house. He had come over with his wagon for a hive, and insisted on my going along. As we passed John's place he took on his wife and two children. I did not like this, and told John so; but he said the bees were in a big piece of woods, and that his wife and children could wait under a tree at a safe distance from the bees. One of John's animals had a colt—a mule colt. Going up a long grade I noticed the colt appeared to be tired. I called John's attention to it, and told him the story that you published some years ago about Prof. Cook taking his little colt up into his carriage, and thus taking it home. At the same time I dilated on the professor's claim that, by kindness to animals, we could make them just as gentle as we please; and I added that Mr. Root indorsed all that Prof. Cook claimed.

Arrived on the ground, I found that these bees, in a moment of temporary insanity, had built up in a forked limb of a large oak. They were on the lowest limb, but it was twenty feet from the ground. I at once decided that the limb—bees and all—would have to come to the ground. I raked together about a cartload of forest-leaves and set them on fire. You can create a world of smoke with forest-leaves, and need not let them blaze at all. Well, the smoke poured up among the bees, and set them to howling at once. I got John up the tree to saw off the limb.

"Now, John, take this rope; put the end of it over the limb above your head, then haul it down and make it fast to the limb the bees are on. When you saw off the bees I will let them down slowly to the ground."

"But how am I to saw? I can't hold on to that limb up there and stoop down to saw."

"All right, John. Here is a short rope. Tie one end of it to the upper limb."

"Well, it's done," said John, looking down.

"Now tie the other end around your neck, so that, if you fall, you won't fall far."

John's eyes blazed with indignation.

"Look here, old man; it's well for you that you've got me up this tree. If I were down there, there'd be a fight or a foot-race."

"I beg your pardon, John. Put it round your waist, and tie it securely."

"All right, old man. Now you're talking sense."

"But, John, if your brains lie in your heels as—"

"Now, there you go again—but, look out now; this limb is nearly off."

"All right, John. I'll let it down easy."

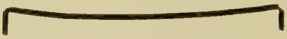
We had miscalculated the weight of the limb and bees, and I shot up into the air like a skyrocket. I heard John shout in derision, "Let 'em down easy!"

I looked up, and saw that great black limb rushing at me at the rate of ninety miles an hour.

If my head should strike that limb, it was certain destruction. A thousand thoughts seemed to rush through my mind at once. What would the poor bee-keepers around me do? What would they do in the hour of peril, without my wise counsel and fatherly advice? What would become of the bee-keeping fraternity, if such a star should set in cloudless night? What would Gleanings — no, no! Gleanings is already a victory. Gleanings will live—live without the aid of any one single man in all this world. All my anxiety was for others. Not a selfish thought sullied my generous and magnanimous soul. But after all I was equal to the occasion. I gathered into my iron frame all the agility of three combined circuses—threw up my hind feet, and warded off the blow. The bees had alighted on the ground, and I on the limb. When I backed down the tree I found the limb and bees had turned clear over, thus making a natural reversible hive. Hang it in the air, and it was right side up. Hang it on the ground, and it was self-reversing.

"John, this is the coming hive. Ten frames (for it has ten combs), fixed distances (because *their* Langstroth is not yet born), self-reversing every minute, for it is so crooked it can't lie still at all. My fortune is made! Hurrah! hurrah! Drawings, four dollars. New hive, just cut from the tree, two dollars. Beginners should take both—one will illustrate the other. Dear! A fraud? What's the matter with you? Didn't Mrs. Cotton sell her drawings for four dollars? Doesn't Dr. Hall charge four dollars for his little secret, which is no secret at all? Haven't I as good a right as any other swindler to make four dollars? Answer me that."

In fifteen minutes I had the comb and bees all in the new hive, ready for home. We did not intend to leave the bees there to fasten their combs. I did the fastening right there. How? Well, I will tell you. Bend a No. 16 wire like this,



so that it will spring tightly on the frame lengthwise. Take a frame and spring three of them on a side. Turn the frame over and fill it with comb. Now spring three more on this side—on top of the comb. Put the frame in your hive. You can haul it any place. The wire is bent inward, because, when it is sprung on the frame, it will hug the comb in the center and hold it fast. Strings? Why, strings are perfectly worthless. They do not and can not brace the comb in the middle—the very place it needs bracing; and yet they are recommended in some bee-papers, and some very good bee-books. One author says they are the very thing, because the bees will eat them away in a few days! *He* was too lazy to spring off the wires.

When we got within a mile of John's ranch, near the top of a long grade, John saw that his colt was about done out. He stopped the wagon and declared he would put the colt in behind. To this I objected; but John replied, "Do you think you know more'n Prof. Cook? Didn't he take his colt inter his kerriage and haul it home? My colt is as good as his'n, and has as much sense. Didn't you tell me he knew all about bugs, and caterpillars, and so forth? And didn't you read lots to me about him intersectin' butterflies and grasshoppers, and other varmints? A feller that knows a caterpillar or a June-bug as well inside as I do outside ought to know a colt too."

"But, John, this is a *mule* colt. Prof. Cook had a *horse* colt."

"I don't care for that. A mule colt a'in't much of a mule till he gets inter the company of his feller-citizens. Look out there—" and he gathered up the mule and heaved it into the back end of the wagon. Thus the lady and the two children, the colt and the bees, occupied the first floor. John and I were hung away up in the air, on a high seat. John was right. That colt was as innocent as a baby that is twins. He lay right down and went to sleep. I was getting disgusted. Here we had been from home more than half a day without the least bit of fun—unless you call it fun to be shot up into the air as if from a catapult, and have to crab it backward down again. But I did not have to wait long. Whether the colt dreamed he was among "his feller-citizens," as John put it, or whether he was yearning, like myself, for a little fun, I can not decide. But all at once there was a wild scream—a hammering and battering noise, and John's wife was sent clear under the seat—mixed up with the two children—up against the front end-gate of the wagon. Then that mule commenced on the hive of bees. He went into the business as if he loved it. In a second he had kicked the cover loose, and the bees poured out. The screams of the woman and children rent the air—tore it into tatters in that immediate vicinity, in such a reckless manner that it took at least a week to mend it.

John jumped down into the wagon and threw the colt over the side. Then he pulled his wife from under the seat and threw her on top of the colt. The two children were quickly piled on top of their mother. Just then I jumped down and struck on the hive, and shut in the bees that had been pouring out all this time. But no sooner had I struck on the hive than John grabbed me, and over the side I went on top of the whole pile. John had gone clear mad, crazy! We were all in a pile, but it didn't take us long to find ourselves, for the bees were stinging furiously. I jerked up the oldest child and cried out, "Martha, break for the bushes! John, drive for your life, to get away from the bees—drive half a mile, and wait for us!"

I covered the child's face with my vest, and stuck it in the bushes. I couldn't help it—I had to pause on the edge of the bushes to see that colt kick. He never moved from the place where he had been thrown out. He stood there to "fight it out on that line." The air was full of bees, and they were furious. He kicked and bucked, and kicked again. He fought the air with his fore feet. He tried to stand on his head, but it was not a decided success. Then he bucked again; and while he was up in the air he tried to paw the bees off his forehead. This brought him down on his nose. But he was up in a moment, and, with a look of disgust, as if the earth, air, and sky were against him, he rushed off after the wagon. So I was satisfied. We had had ten minutes of the keenest and most glorious fun! You see, I am only 68 years of age, and the hot young blood runs riot in my veins. Why wasn't the world all made out of fun?

When we got to the wagon I saw that John was angry. He would not speak more than a yes or no. So I took a short road through the hills to my own home.

Sumac, Cal., Aug., 1891. J. P. ISRAEL.

[Friend I., when you spoke about that mule colt, in the fore part of the article, I began to surmise at once a fracas among the bees. There is nothing that makes the bees so *awfully* cross as to have their hive unceremoniously kicked or knocked about. Say, it must have been rather exhilarating to find yourself suddenly shooting up into the air. Verily, I believe I would have let go and dropped. We reserve the sequel till our next issue.] E. R.

HOW TO MAKE THE BEES ACCEPT THE DOOLITTLE CELL-CUPS.

UPPER STORIES FOR CELL-BUILDING NOT ALWAYS RELIABLE.

I notice in GLEANINGS that you fail with the cell-cups. I will give you the benefit of my experience, and, if it will be worth any thing, I shall only be glad. I don't depend on having the cells started in an upper story, as the bees will tear down the cups and start comb, especially if nectar is coming in; and if not, they will not start the cells. I fasten cups to bars or strips of comb on the plan of having cells built on strips of comb (the Alley plan, I believe). A frame will hold about 60 cups. This frame I place in a strong colony made queenless and broodless, and let it remain three or four hours, when the bees will be ready to accept the young larvæ placed in the cups, and will start from 25 to 40 cells—these the next day to be removed to an upper story where they will be completed, provided nectar is coming in; but if not, they may not perfect them as they should without feeding. At certain times I find these upper-story bees very inquisitive—especially so after swarming has passed. I find that, from about the 1st of July, in my locality, till fall flow of honey commences, the bees in upper stories are very tricky, and will not do to depend upon to work out and care for cells.

I find also, by experience, that it will not do to keep any colony building cells long at a time. They seem to get tired, and will not work as when first made queenless; upper stories are the same way. A colony made queenless and broodless, as I have mentioned above, and given a frame of cell-cups with larvæ, will start cells by the cup plan better, and more of them, and will continue to do so longer than by any other plan. I often use a colony that way for a whole week, by taking out those cells started, and give them fresh cups with larvæ.

Transferring larvæ to these cups is a very small matter when one gets used to it. When I make my cups I am not very careful as to the depth; but after they have hung in a hive three or four hours, if the bees do not cut them down properly I clip them off to the right depth with my honey-knife heated at the point.

I can't say that I see any difference in the queens reared in the cups and those the bees start in the strip plan; but it saves mutilating the comb, and the cells are well apart, and are more easily transferred, as they become capped, to a nursery.

While I am writing I will say that I use pulverized sugar for candy instead of granulated sugar. This I work into honey that has been warmed until thin, and work well until it will not run. After my candy is made and given the bees, I notice it looks like granulated sugar.

The more I use the improved Benton cage, the more I like it. J. D. Fooshe.

Coronaca, S. C., Aug. 7.

[Your article above, friend F., is right in line with our experience, and gives the keynote why we first failed with the Doolittle queen-cell cups. We gave them, in our first trials, to an upper story of a strong colony having a queen, and this, strangely enough, was during the honey season. Out of a dozen cups given them with larvæ, at a time, we could secure on an average about 2 cells from a lot. The rest were either torn down, or, what was more often the case, comb was being built in the space they occupied. In some cases comb completely covered cells that were nicely built out and capped over. Well, before we knew it, the upper story of our cell-building colony had become queenless, and it was *then* we began to have success with the cells given them. We could not imagine why the cells would be accepted in one case and not in the other, under apparently precisely the same conditions. We were forced to the conclusion that the absence of the queen in the lower story accounted for it, and an examination proved it. Our cell-cups are now given to queenless colonies to start; and nine-tenths of those cups are accepted. After they are once *started*, the upper story of a colony having a queen will build them out. We do not find any thing in Doolittle's book that contemplates just exactly the condition of cell-building as we find it in our own apiary. We have no doubt that Mr. Doolittle can enlighten us, or perhaps point out the missing link.

We, too, have found that the bees in an upper story sometimes get tired of cell-building, and after a while do not do their work so well.] E. R. R.

SOME ITEMS.

BACILLUS DEPILIS.

What causes the nameless bee disease? Does any one know? Does the location of the individual hive cause it? These are the questions that are running through my mind at this time, and I thought a few facts along this line would not be amiss in Gleanings. Four years ago was the first I ever had this disease in my apiary that I know of. I then found it in one hive, and that colony became so depopulated that I united it with another for winter. The colony stood all summer near an ant-hill, which grew during the summer to a large size; thus the stand of this colony became of note in my mind, so that a mistake would be impossible as to the location. On this colony I tried no preventive, only carefully inspected the bees, hive, etc., but could come to no conclusion regarding the trouble. Three years ago no bees occupied that stand on account of the ant-hill, and during that summer I dug the ant-hill out one wet day, and stamped other earth in the hole, *a la* somebody—I can not tell who, but guess it was Prof. Cook. This dirt, when it hardened, kept the ants away that year. Last year I placed a colony on this stand having a queen in it that came from the South, and in about six weeks from the time the colony was placed there I noticed that the ants had begun on their old location again, near the entrance of the hive, and in a week or so more I noticed that the nameless bee disease was putting in an appearance in the colony. In a short time this colony became worse than the first, if possible, they being out in front of the hive, rolling in the dirt by the hundreds, and finally dying to such an extent that there was a stench about the place. I now gave them three frames of brood from another hive to keep their strength up, killed the queen, and gave them another, *a la* Root. This new queen laid very prolifically, and I hoped that these new bees would be proof against the disease, as friend Root told us we might expect; but not so. These took the disease, or were never free from it, and all died before spring, in the cellar, while not another colony died, or came anywhere near it, that was wintered in the same cellar. This spring I placed another colony on the stand—a colony which had been perfectly healthy all of the season of 1890 (as were all the rest of my bees, except the one spoken of above), and in less than six weeks from the time this colony was placed on this stand it began to show signs of the disease, and to-day is nearly extinct from the great mortality of the bees, although the combs have been kept well filled with brood all the while. Some four weeks ago I tried the brine (or salt-water) plan, as recommended by Henry Alley and others, making a brine so strong that not nearly all of the salt would dissolve, and poured this on the combs and in the hive. For a few days I thought this was going to be a help, but now the bees are dying and rolling about in front of the hive as badly as ever, while on the combs and in the hive the condition is no better, although there is still plenty of salt in sight therein. I am now giving them brood and a new queen to try and see if they can be wintered. During all this time not another colony in the yard has shown signs of the disease. Can the location of this hive have any thing to do with the trouble, or the ants? With Dr. Miller I will say, "I don't know;" yet I must say that it is very singular. I have studied the colony as closely as possible; but so far I have no light as to what the trouble is and how it can be remedied.

KEEPING DRONE BROOD.

We queen-breeders often want to keep the very last eggs laid by the queen of our choice in drone-cells, so as to have a very few fine drones late in the season. By hand-picking these, after all the other drones are killed off, we can have things our way as to the mating of our queens. Now, I find that drones reared in July "play out" before October; hence, to have good strong drones in October they must come from eggs laid during the fore part of August. I have no difficulty in getting these eggs during the last of the honey harvest; but to get the bees to perfect them to living drones is where the trouble lies. Last year I tried placing these in a queenless colony, but only about 50 drones was the result out of about as many thousand eggs. This year I tried putting them in a populous colony which had lots of honey, putting them over the queen-excluder, in the second story, where I raise my queen-cells. This did better than last year, yet the bees destroyed over one-half of the eggs. Who, in a locality similar to mine, where basswood is the last honey crop, can tell me how to rear and keep drones during August and September?

QUEEN-CELLS FROM WAX CUPS.

I see friend Root is not having success with the wax cell-cups, again, although he reported success last spring. Now, my opinion regarding the failure is, that the trouble lies in handling the larvæ. These very little larvæ are easily killed by rough handling, or handling them in too cool a temperature. The end of the instrument used should be very thin, and conform to the shape of the bottom of the cell, and before using be dipped in royal jelly, so that the little larva will float above the quill-point on this jelly in lifting it out. I find by looking over my record of this season, so far, that out of 996 cups used, as given in my book, 852 have been completed, and given nice queens; and I do not see why friend Root can not do as well, if the larvæ are not injured in manipulating them. G. M. DOOLITTLE.

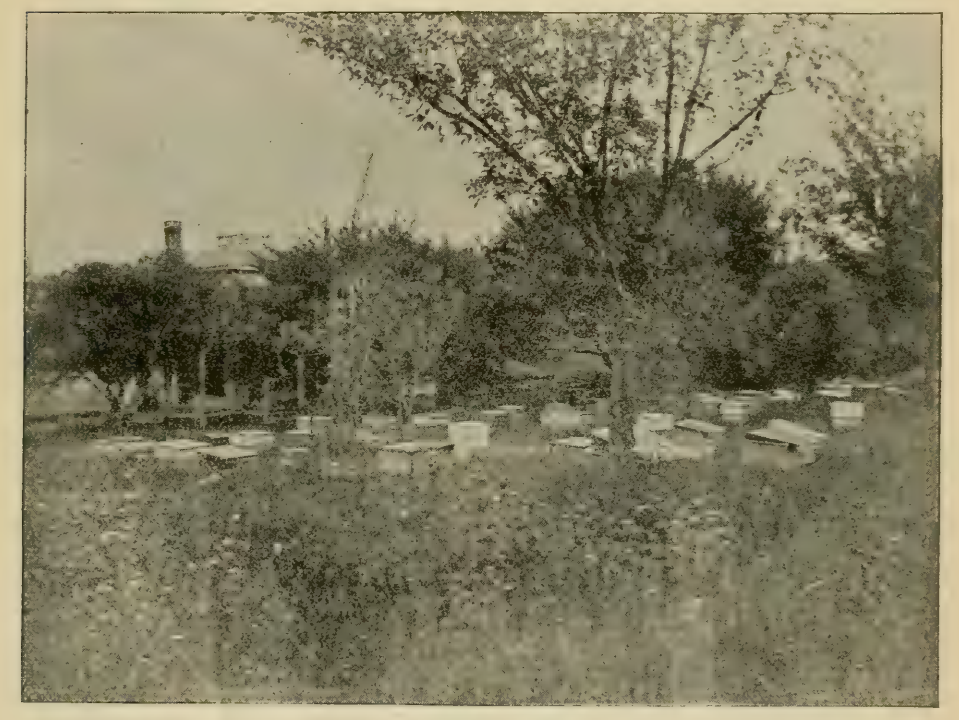
Borodino, N. Y.

RAMBLE NO. 44.

SITTING AT DOOLITTLE'S FEET.

From Syracuse to the outlet of Skaneateles Lake there are some changes to make, and some waiting to endure. Ordinarily, from Skaneateles the journey is performed by stage; but as I landed from the train I learned that a little steamer was soon going up the lake. I availed myself of the opportunity, and had a delightful, restful, refreshing half-hour's ride until the dock at Borodino was touched. The village of Borodino is a mile from the landing, and forward I stepped with a light heart. Bees were merrily buzzing on raspberry bloom by the wayside, and an occasional glance at them revealed the golden Italians. Borodino is a little village of 160 people; and inquiry of the good-looking people I met revealed to me that Bro. Doolittle lived another mile beyond. The weather being decidedly torrid, I mopped the sweat from my brow for the twentieth time, took courage and went forward. As I walked up the road that led to his house I saw a man over on another road a quarter of a mile away, whom, from distant appearances, I thought to be Doolittle. When he turned up the road and followed me I knew it was Doolittle, and it was Bro. D. A short ride behind a large dapple-gray horse brought us to the residence.

As might be expected, he had the carriage well loaded with bees in those well-known nucleus boxes, which he had obtained from an out-apiary. Nuclei were immediately formed for cells, and during the forming of these nuclei there was an opportunity for looking over the bees. We found the colonies used for breeding were of a beautiful golden color; and what Mr. D. called five-banded were solid gold to the tip, which showed only a tinge of black. The bees were gentle to handle, and the orders for them were giving Bro. D. all he could do to fill them. His apiary and system have been so much written about and illustrated that I do not propose to treat on that subject in this article. The camera was brought out, and one view taken of the apiary and the residence; and I can write only somewhat personally of Mr. D. and his home life as I caught a brief glimpse of it.

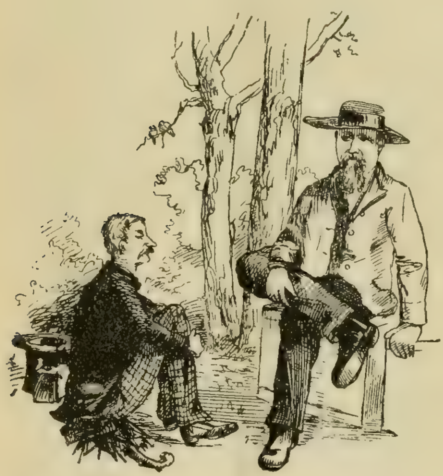


DOOLITTLE'S HOME AND APIARY.

Mr. Doolittle's hives are not so pretty as you would think to find in an apiary of such wide reputation. A good share of them are painted, but quite a number of the large hives are unpainted, and show the marks of many years' exposure. The hives that Mr. D. winters in his clamp are cumbersome double-walled hives packed with straw, which are carried into the clamp, straw and all. As bee-keepers well know, Mr. D. uses the Gallup frame; and all his manipulations, either in raising comb honey, extracted honey, or queen-rearing, are performed with this frame. He has "become used to this management," likes it, and advocates it, and it is evidently none of the Rambler's business if he sticks to it. Still, I believe there are just as good and less cumbersome ways to accomplish the same ends.

Bro. D.'s avoirdupois is about 280 lbs.; still, he does not have the appearance of an unwieldy and clumsy man. It is, however, some labor to carry himself around; but there is steam enough in the system to do the business, with a surplus to spare. In personal appearance he is of average height, full florid complexion, sandy hair and beard, blue eyes, and, on the whole, a sanguine temperament. The queen of the household has the same general make-up as the head, only less in degree. Mrs. D. gets around to her daily cares with a perceptible limp, which is a cross patiently borne.

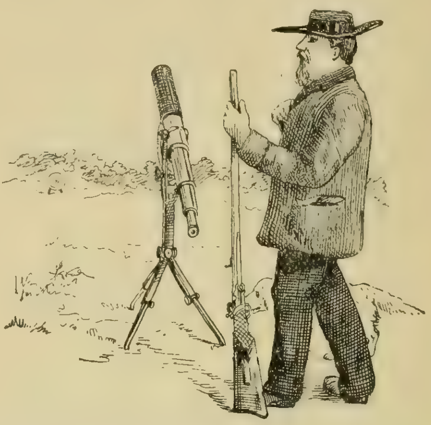
Mr. D. does not live in a mansion; but his home was erected under his own supervision, and is one of those modest American homes built according to present needs and means, and under the roof of which there is more real happiness and enjoyment than can be found in palace halls.



SITTING AT THE FEET OF DOOLITTLE.

If, as some writer has said, refinement can be judged from the books and papers found in a house, then we can judge Mr. D. well up, for the latest and best magazines and papers are in profusion, while of bee-publications there are files of all for several years past.

While many mount their hobbies with so much noise that all the world knows it, Mr. D. very quietly gets upon his, and no doubt enjoys them just as well. It may surprise many of your readers to learn that he is an amateur astronomer, and has a fine telescope that will show the moons of Jupiter, the rings of Saturn, double stars, and many other wonders of the heavens. Still, he thinks his glass but an aggravation, as there is so much beyond he desires to fathom. In the study of this noble science we see where Bro. D. gets his breadth of thought, for no man can look into the wonders of the heavens without becoming a broad and liberal thinker.



DOOLITTLE AND HIS HOBBIES.

Another hobby is an annual season of hunting and fishing. The beautiful Skaneateles Lake is a fine field for the exercise of the hook and rod; but from the contour of the country, and the apparent scarcity of large forests, I should judge the kind of game mostly pursued was targets. That this game was pursued with energy was proved by a fine stand of three telescopic rifles.

The little office had the general tidy appearance of the house; and the cosy corner where the Hammond type-writer is used is surrounded with other literary conveniences.

Mr. Doolittle is a useful man in the community in which he lives; is an active worker in the church, lives near his Maker by a daily study of his word and a daily communing with him in prayer; and in his conversation about those around him, and about the bee-keeping fraternity in general, I found him a man possessed of charity for all and malice toward none.

I have a lurking suspicion that Bro. Doolittle is not altogether suited with his locality. As a successful queen-breeder with an extensive patronage, he is aware that his season can be lengthened by a move further south. But for various reasons Borodino will be his home for some time yet.

In the early morning I took the stage for the busy outer world, and the pleasant home of Bro. D. will ever be cherished in the thoughts of the

RAMBLER.

[Your visit at Mr. Doolittle's I have read with much interest, as it revives many pleasant recollections of my recent visit there. I believe we have never before had an engraving of Doolittle's apiary, as much as it has been prominently before the bee-world during the last fifteen or twenty years. I took a Kodak view of it, but it was not large enough to reproduce in GLEANINGS with any effect. His hives and frames did not strike me as being as easy to manipulate as some, but then, as you say, he has got *used to* it. I can't help but think he would do as well with the L. frame and hive.—He lives in a beautiful section of country. His home and apiary is midway between two of the prettiest lakes in the world, only about a mile from each, I believe. I enjoyed my bicycle trip in this region; and if our friend only had good long seasons for queen-rearing I don't believe he would ever *think* of moving.] E. R.

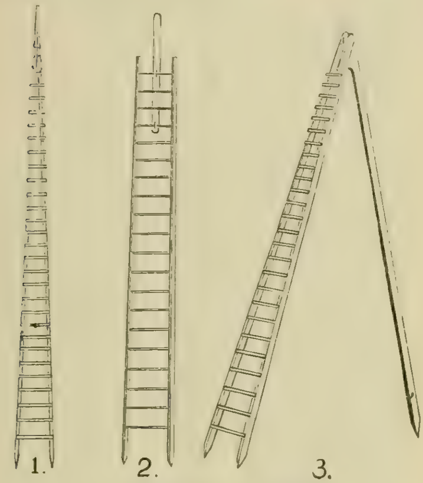
IMPROVED SWARMING-LADDERS.

DR. MILLER IMPROVES STRIMPL'S DEVICE.

Whoever has had even a little experience in trying to set a ladder against a tree, in among the limbs, will appreciate the upper terminus of Strimpl's swarming-ladder, as given on page 624. The lower extremity is also good — the sharp points to stick in the ground. I am inclined, however, to think that the middle part must be modified in order to stand the test of strength.

A very little reflection will show that it will be difficult to fasten the steps or rungs of the ladder securely enough. There is only a small surface on which to nail the rungs; and when the foot steps on them, it has a strong leverage to tear off the rungs. If holes are bored through the upright, so that no nails are needed, the leverage will still be there to split the upright, so that in any case there must be as much, and I am inclined to think a little more, weight of lumber than in the ordinary ladder, to secure the same strength.

But the desirable feature, the upper part ending in a single point, can be retained by a little modification of the common ladder. The picture will show what I mean.



SWARMING-LADDERS.

Fig. 1 is merely a common ladder having one side longer than the other, the short side coming close up to the long side, and a few of the upper rungs allowed to project.

A common ladder may readily be changed to answer the purpose by having a middle piece fastened to the upper rungs, as shown in the cut, Fig. 2. This middle piece projects above the two sides of the ladder as much as may be desirable. It may be necessary to use strap iron in fastening this middle piece to the upper and lower rounds to which it is attached.

It often happens that a swarm alights on a place where it is not easy to set a ladder conveniently against the tree, whether the ladder terminates in one or two points. Especially is this likely to be the case with bushy fruit-trees. The swarm is away out at the end of an overhanging limb, and it is hard to get the ladder anywhere near it. In this case a fruit-ladder described in *Popular Gardening* comes in. The principle is very old, Fig. 3. It is made of common inch boards, about 5 inches wide, a rest-piece coming between the two side-pieces at the top, and a bolt passing through the three boards, holding them close together. This third piece is of the same width as the two sides for a little way at the upper end, and for the rest of the way about an inch narrower, so that the piece can be folded up, allowing the ladder to be set up against a tree the same as an ordinary ladder.

With Manum's device and a good hook, there ought to be very little need for ladders.

Marengo, Ill. C. C. MILLER.

[As soon as I saw the diagram of Strimpl's ladder I recognized at once that he had given us something good. But now you have gone and made it a good deal better. I believe it would pay in every well-regulated apiary to have ladders like Nos. 1 and 3—that is, providing there are tall trees around. In our home apiary there is nothing but low grapevines; and with a fountain pump and a Manum swarmer it is seldom that a swarm gets out of our reach from the ground.] E. R.

LUTHER W. GRAY.

SOME REASONS WHY WE SHOULD BE CAREFUL ABOUT ACCEPTING ADVERTISEMENTS.

Not a few of the friends have been offended because we have insisted on having full information in regard to the financial standing and general habits of a person before accepting advertisements; and we have, in consequence, received some pretty severe letters. I have thought best to give you an illustration by narrating a case in point, that *some* of our readers will no doubt be greatly interested in. On the 1st of May, 1890, the following advertisement appeared in our pages:

> Tested Italian queens now ready, at $1.00 each; untested, 75 cts; ready by return mail.
> LUTHER W. GRAY, Orlando, Fla.

I may explain that we had had some previous acquaintance with friend Gray, and had accepted several advertisements. As no complaint appeared, we had no hesitation in accepting the above, especially as he says, in a postscript to us, "Give two lines of space to the underscored words, and make prominent 'Now Ready,' and '$1.00.'" If there really were queens ready then, there should be no reason why they did not go by return mail. Very likely, friend Gray did have tested queens ready on hand. We hope these went by return mail; but before long, complaints began to come in. We wrote to him repeatedly, and we give space here for one of his replies:

> Your letter of May 13th was received. I will make matters straight as soon as possible. On account of ill health I am staying a while in the mountains.
> LUTHER W. GRAY.
> Chattanooga, Tenn., May 22, 1890.

Now, I felt a good deal vexed with the above, for it seemed to me a rather cool piece of impudence. If it were myself, I believe my health would be improved more in sending money back, when I could not fill orders, than in using it to stay in the mountains. May be, however, I am too severe on people who are out of health. But before my health fails I hope God will give me grace to place my affairs in such shape that I can get sick with a clear conscience. Well, friend Gray has not sent the queens nor returned the money *yet*, and I have published him because many of his customers urgently demand it. When we could get no further letters from him, I obtained the address of his father. Then I suggested to his father that *he* might be able to help him to return the money, as he was unable to furnish the queens; or if he could not do this. I suggested that he write something for print by way of explanation of his son's conduct, to which he replied as below:

LETTER FROM LUTHER GRAY'S FATHER.

Dear Sir: -I don't see why you are under obligations to advertise a sick man as being a fraud because he failed in business because of being sick; neither do I see how it will benefit you or Luther's creditors either. There never was a more honest boy than Luther, and more upright in all his ways, and no doubt he intended to fill his contracts, and will, if he gets well enough to attend to business. He started to Florida last fall, or winter (where he has some bees yet), but got worse before he got to his journey's end, and came back and has not been able to do any thing yet. He seems to be better now. I never heard the name of fraud used in his case, or applied to him before. Universal sympathy is expressed by all who know him. Many fail in business who are not sick, and are not always advertised as fraudulent. I do not think it would be pleasant or profitable for a man who has plenty of business, to say, in a public document, that Luther obtained money fraudulently. In fact, I know it would not. He has bought many lots of supplies from you, and some are here now—honey-extractor and other things. You can have them if you want them. He shipped them here from Florida, and paid more freight on them than they are worth. He used it but very little; but that is not your fault. I knew nothing of it. I suppose he did not like to ask us for money to pay back, hoping to be able to fill the orders, and perhaps will yet; if not, we may assist him. Wm. Gray.

Zanesville, O., 19 N. 4th St., June 10. 1891.

Now, friends, let us try to take an unbiased view of this whole matter. Is Luther Gray a fraud or is he not? Can a man say honestly that he failed in business when he put in an advertisement like the one sent by friend Gray, and then kept or used the money when he found, on account of ill health, that he could not furnish the queens? Perhaps those who have lost *money* by him will have more decided opinions than others. My impression is, that an even $100 would come pretty near settling all claims, and leaving friend Gray square with his fellow-men. The account has been sent to an attorney, but he replies that Mr. Gray is possessed of but little means, and is in poor health, so that nothing can be recovered by law. By the way, this whole transaction reminds me of a remark once made by our friend W. Z. Hutchinson, editor of the *Review*. He said the money he received for queens was never *used* until the queens had been put into the postoffice; therefore when the weather was unpropitious, or if poor health intervened, the money was at hand, ready to go back with an apology. I am afraid, however, that we have not very many who are as conscientious as this. Now, we do not undertake or agree to be responsible for all delinquencies of our advertisers; but in the present case I wish all who lost money by friend Gray would tell us how much. We do not want long details—just tell us briefly how much money you sent him for which you received no equivalent. His father suggests, in his closing sentence, that he may assist him some; and if our brother who is out of health is really desirous of making good those he has unintentionally wronged, shall we not turn in and help him? He who has poor health certainly should have our sympathies. I know a little more about it than I did a week ago, for I have been having a touch of the grip myself.

There. I have tried to treat this whole matter in a Christianlike way, and in a fair way to all parties concerned. Have I been too severe or too easy with our delinquent friend? Perhaps some of the friends may be able to take the extractor his father mentions; and where the amount he owes is sufficient to cover it, I would advise corresponding with him direct. A. I. R.

MR. EDOUARD BERTRAND.

A BEE-KEEPER, EDITOR, AND AUTHOR.

Among the foremost bee-keepers of Europe, and one who stands high in apicultural circles, is Mr. Edouard Bertrand, editor of the *Revue Internationale d'Apiculture*. While the rest of France has rather held to the old-fashioned straw skeps, Mr. Bertrand, with the assistance of Mr. Dadant, has been slowly infusing into the bee-keepers of that country progressive ideas; and he is therefore, perhaps, the most distinguished bee-keeper of that country or Switzerland. He it was who gave material aid to Mr. Dadant in translating "Langstroth on the Honey-bee," revised by Dadant, into the French language, at the same time adapting it to French people. Some time ago there appeared in the *British Bee Journal* a biographical sketch, accompanied by a half-tone engraving. At our request, Mr. Charles Dadant furnished us with a photograph from which we made a new portrait. The following is taken from the *British Bee Journal* for Nov. 7. 1889:

We have much pleasure in presenting to our readers this week the portrait of one of the most advanced bee-keepers on the continent of Europe, and who is one of the pioneers of modern bee-keeping in Switzerland—that land literally flowing with "milk and honey."

Ed. Bertrand was born in 1832 in Geneva, where he was educated, and resided until he was nineteen years of age. Like many other Swiss he left his native home to make a living abroad. Paris was the chosen place. He remained in business there until 1873. The anxiety he went through during the insurrection of the Commune in 1871 told seriously upon his health, and, not having any children, he decided to retire from business and return to his native land. Here he purchased a property on the shores of Lac Leman, where he could devote himself to his favorite pursuits of horticulture and arboriculture.

It was not long before he became possessed of two skeps of bees with straw caps, such as are used by the villagers, which a friend of his had offered to him, and with these he commenced bee-keeping. Having no other ideas about bees than those he gathered from the work of his compatriot F. Huber, in his *Nouvelles Observations*, he found that the knowledge acquired was not sufficient for practical bee-keeping. The first two or three years of his novitiate were passed in trials and failures without ever harvesting a single pound of honey. He tried, one after the other, hives with supers, such as the Varembey, Ribeaucourt, Carey, Christ, etc.; then hives with small frames, like the Berlepsch, Vaudoise, Bauverd, Jarrie, etc., always with the same unsatisfactory results. The neighborhood of Nyon is not very favorable for bee-keeping, and no apiary had succeeded there before him. The honey-flow is of short duration, and therefore more than in other places it was necessarry to have strong colonies, an impossibility with the small hives he was using. He became at last acquainted with the works of G. de Layens, *Elevage des Abeilles*, and of C. Dadant, *Petit Cours d'Apiculture*. The methods there described were a revelation to him, and in 1877 for the first time he obtained a good harvest of honey from a Layens hive, which he had placed in an apiary he had started in the mountains on a small family estate. The following year he changed his hives, partly for the Layens and partly for Dadant, and established a third apiary at Bex.

In 1880 he started a third apiary at Allevays, in the Jura, which he visited and described in *B. B. J.* for 1883, p. 96. Here he put an equal number of Layens and Dadant hives for comparison. This apiary, which later he gave over into the charge of an assistant, has always given good results in spite of foul brood, which decimated it, but which, however, was stamped out. Not only its first cost of 2500 francs (for hives, building for lodging, and workshop and fences) was quickly returned by the produce, but every year a handsome profit is derived and is divided between Mr. Bertrand and his assistant. Mr. Bertrand supplies at his cost all comb foundation, and takes in return all the wax from cappings and melting of old combs. When sugar for feeding has to be purchased, each pays his share. The assistant does all the work, and all swarms are the property of Mr. Bertrand, who supplies the hives and appliances. This apiary consists of fifty hives.

EDOUARD BERTRAND.

In 1876, when the *Societe Romande d'Apiculture* was started, Mr. Bertrand was elected secretary, a post which he occupied for seven years. On several occasions he has been elected president of this society. This post can be held by the same person only two years consecutively. He has also been the treasurer since 1879.

In 1876, the society having recognized the desirability of having an organ which would place its members in communication with each other, and inform them of the advances made in bee-keeping, Mr. Bertrand offered to edit the journal, on condition that he was the sole manager, and undertook to bear all costs. He furnishes the journal to the members at a reduced rate; namely, three francs, whereas the ordinary subscription was four francs; and, in order to remunerate himself, sought subscriptions at home and abroad. At the end of two years the *Bulletin d'Apiculture pour la Suisse Romande* had sufficient subscribers to pay its cost of production; and these having so rapidly increased abroad, especially in France, he changed its title to *Revue Internationale d'Apiculture.* There is no doubt that this journal is the most practical in the French language; and as it is the only one that treats seriously of modern methods, we are not surprised that it is eagerly sought after by advancing bee-keepers.

Mr. Bertrand has also from time to time published several practical works, such as *La Routine et les Methodes modernes, premieres notions d'Apiculture*, in 1882; *Description des meilleures Ruches; Conseils et Notions a l'usage des Commencants;* and in 1883, *Calendrier de l'Apiculteur.* The three last were later combined in one volume, entitled *La Conduite du Rucher*, which has already passed through four editions. Mr. Bertrand has also translated our *British Bee-keepers' Guide-Book*, and is at present engaged on a translation of the last edition.

He has been indefatigable in giving instruction, and from 1884 to 1887 every spring he gave a course of lectures and practical instruction at his apiary. This course lasted six days, and was open free of charge to all. The mornings were devoted to instruction, and the afternoons to manipulating hives. Failing health caused him reluctantly to relinquish them. He still from time to time gives lectures in villages, and gains many converts to modern methods. He is appointed lecturer on apiculture at the Government Agricultural Institute at Lausanne. The acquaintance which we made with Mr. Bertrand some years ago has grown into an intimate friendship, which we hope nothing but death will sever. His persevering industry and indefatigable zeal make him esteemed by all who know him, and it is to him that the French-speaking portion of Switzerland owes the present position it holds with regard to bee-keeping. We hope he may continue for many years to enjoy his quiet retreat at Nyon, and pursue his favorite occupations of bee-keeping and horticulture. A full account of Mr. Bertrand's apiaries will be found in Vol. XIII., *B. B. J.*

Mr. Dadant adds the following:

Since the publication of the works mentioned above, Mr. Bertrand has published the 6th edition of his *Conduite;* a translation in French of the *Honey-bee* of Cowan; and, after helping me to publish *L'Abeille et la Ruche*, he has published *La Construction economique des Ruches Layens*, and just now the same work on the Dadant hives.

THE DOVETAILED HIVE AND LOOSE FRAME.

SUGGESTIONS AND CRITICISMS FROM J. H. LARRABEE, OF THE MICHIGAN AGRICULTURAL COLLEGE.

Friend E. R. Root:—We have been trying some of the Dovetailed hives; and although, because of the poor season we could not test them to our entire satisfaction, I will suggest a few points in their construction whereby they might be altered to suit me better.

Horace Greeley said that the average newspaper article should be cut in two in the middle, and the first half thrown into the waste-basket, the last half published, so I will make a line here where you can divide this.

In the first place, the follower, or division-board, is too thin and frail. I like something a little more substantial, that will hold a good stout nail; and those cleats at the ends can be nailed on in two or three ways, so as to destroy their usefulness by closing the bee-space at the ends so that they are soon fixed.

Then I don't like the end-bar of the "swinging" frame. It is "too thin;" and the slit at the top to admit the comb-guide makes it almost impossible to nail firmly this end-bar to the top-bar to maintain the frame a perfect rectangle. Just go out into the shop where those heaps of frames are, Ernest, and nail a few and tell us how you would do it. We don't use the comb-guide, as we like full sheets of foundation in wired frames.

Another thing. Are you sure that ⅞ inch is the proper and necessary thickness for the top-bars of frames? Isn't the main idea in having thick top-bars to keep the frames from sagging? and won't ⅝ inch do it? Is Dr. Miller doubtful that ⅝ inch will prevent sagging, or does he doubt for other reasons? I like the wide top-bars. I have, at home, about 1500 frames with top-bars a plump inch in width, and like them. I have the more appreciated their value since I have handled frames this summer with ⅞-wide top-bars spaced 1½ inches that had to be cut from the adjoining frames with a jack-knife before they could be removed.

Again, were I buying one hundred or one thousand of these hives for my own use I should prefer to pay 10 or 15 cts. per hive more, and have the tops and bottoms made of the clearest and best pine obtainable. Nearly every one of the covers we have here has warped so that a bee could pass beneath them.

Now, if I have found fault with the hive it is because I like it. I believe the ideal hive will be obtained by a slow process of evolution rather than by brilliant invention. The first great step was taken by father Langstroth; and, as has been the case with all other great inventions, when once the first principle was discovered, the remainder of its progress has been step by step.

I am thankful that we have such large dealers in bee-supplies as Lewis, Falconer, and Root, each one of whom is willing to sacrifice present gain for the ultimate benefit of the pursuit, realizing that their lasting prosperity depends on the success of bee culture as a permanent source of livelihood. On the enterprise and conservatism of these and other large firms depends the responsibility for the future progress of apiculture to a large extent.

J. H. Larrabee.

Ag'l College, Mich., Aug. 19.

[Thanks. Such sort of criticisms we invite. The division-board has been made heavier since those we sent you; and the drawings that will accompany the new hive will show how to nail them so that there can be no mistake. We have no complaint of the end-bar of the loose frame—or, as you call it, a swinging frame. I know, after they are nailed together, or, rather, in the nailing, there is a tendency to depart from the rectangular; but many bee-keepers have a sort of nailing-form that holds the frame securely while being nailed. I do not quite see why the slot for the comb-guide in the end-bar weakens the frame.—No, I am not sure that ⅞ is the necessary thickness; but I know it is sufficient, and prevents all sagging, and at the same time does prevent burr-combs. Top-bars for loose frames we do not dare to make shallower, although we have done so on the Hoffman. I have observed, however, some of our top-bars ⅝ inch thick and one inch wide have already begun to sag perceptibly. But our top-bars ⅞ inch thick are as true as a straight-edge, although they have been in use for over two years. I do not wonder that you do not like top-bars ⅞ inch wide. I hope you will get Prof. Cook and the rest of them to adopt a wider and thicker bar.—In regard to lumber in the hives, we endeavor to put in nothing but sound knots, with as much clear lumber as we can get in ordinary lumber we use for hives. Lumber perfectly free from knots is just as liable to warp and twist as that which is not. A few years ago we offered to furnish Simplicity hives at a slight additional cost, made of perfectly clear lumber; but there were so few calls, that it did not pay us to keep the notice in the price list. We take it that bee-keepers generally are satisfied with bee-hive lumber, even though it is knotty, providing said knots are sound. It is possible, in the hurry of our season, that you have gotten some extra poor covers and bottoms, and we should be glad to send you better ones. Ours do not behave in the way you speak of. They are all bee-tight—every one of them. There are a few that show a little tendency to wind. The tendency is slight, however. I believe you are right. Large supply-dealers are, as a rule, quite willing to sacrifice present gain for the ultimate good of their patrons. When the thick-top-bar rage, as well as fixed distances, came up, we were obliged to modify some expensive machinery—or, at least, in some cases, put in other pieces. All of this sacrificed present gain, but we believe it will result in ultimate good.]

TESTING THE DIFFERENT BEE-ESCAPES.

THE PORTER COMES OUT AHEAD.

Believing, as I do, that the bee-escape and queen-excluder are bound to make quite a revolution in the production of comb honey, I thought perhaps an article on that subject might be acceptable.

First, I will give my mode of constructing a simple and cheap bee-escape which can be made by any one who has the tools at hand. It is constructed on the double-cone system, and therefore is nothing new, I suppose, but may be somewhat easier to construct than some others. The one I shall describe is for the Simplicity hive, for taking off extracting-supers. First, I make a rim the same as for a cover. In fact, it is a cover, only I use ½-inch lumber for the top, and bore one to five one-inch holes through it. I think one or two as good as more. I now take my former for making Doolittle queen-cell protectors, and make a lot of cones, and bend the corners out at right angles to the perpendicular of the cone. Drop one through the hole from above, and fasten the corners with small tacks. Turn the cover over and place another cone over this one, tacking the corners to the under side of the cone. This leaves the apexes of the cones ½ inch apart, and room for bees to pass between the two cones; thus, if the bees enter the first cone they are apt to miss the inside one. Those who are not familiar with the Doolittle cell-protector can refer to the A B C or back numbers of Gleanings to see how they are constructed.

The first one I made for trial, I put five double cones in the board; afterward I made a number with three double cones—one double cone, and one with one single cone. The circumstances under which they were tested varied somewhat, as some of the hives had no excluders, and consequently brood in upper story, and I find that we need not expect any escape to work satisfactorily where this is the case. The one single cone did very well. One double cone worked poorly; but, perhaps, this was owing to circumstances or the disposition of the bees. Three double cones did very well where there was a queen-excluder, in nearly every case. The Dibbern star, sent out a year or two ago from the Home of the Honey-bees, did poorly, though there was a small patch of sealed brood in the upper story. But when I came to the Porter spring it just "took the cake." As nearly as I could tell, there were about fifteen bees in the super. As the darkey said, I counted all but one, and she frisked around so I could not count her. All were put on about 6 P. M., and supers taken off about 9 next day. The supers were carried into the honey-house without brushing off the bees remaining, and placed close to one window having a bee-escape as shown on page 561, GLEANINGS for July 1. The sash were removed to allow the bees to alight directly on the screen, and all combs containing no brood were vacated in a short time.

I could now lay off my hat, roll up my sleeves, and go to work extracting in a businesslike manner, instead of running in and out, carrying combs in buckets, brushing bees, getting stung, etc. We did not have enough No. 1 honey-boards to reach round for extracting colonies: but we do not intend to be without a full supply in the future. I believe that the time is coming when few extensive producers of extracted honey will be without them. For comb honey, the honey-board is not needed; and while I am not yet converted to the Hoffman frame, I would recommend the thick-top-bar frame, and the abolishing of the honey-board for comb-honey production. We get along without honey-boards, even over the metal-cornered frames, with $\frac{5}{8}$ top-bar; and in only one case did the queen enter a few sections.

To producers of extracted honey I would say, use the No. 1 queen-excluding honey-board. Then use bee-escapes to rid the supers of bees; and if a few remain, place them in the honey-house near a window with a bee-escape, and do away with brushing bees off the combs, and the consequent stings and hard work; for there is nothing more laborious about the apiary than bending over, shaking and brushing bees off the combs.

I now wish to name one of the advantages of the Porter spring bee-escape over others; viz., being instantly changeable from one board to another. With the Simplicity hive, an escape-board for removing comb honey should not be larger than a T super, so that an empty super may be placed over the brood-chamber, the escape-board over this, and the full super on top; but for removing extracting-supers this is not practical, as the board should have a rim to fit the hive-body; and with a supply of both kinds of boards, one set of escapes will do for all.

I tested two escapes—the Dibbern star and my three double-cone—to see how many bees would return after leaving them on about 24 hours. I found that many bees would return through the Dibbern star; over the three-cone escape the robbers had gained an entrance between the escape-board and the upper story, so that I could not tell. There were quite a number of bees in the upper story, but most or all of them seemed to be robbers. I did not try the Porter on the back-action principle, as I considered it of no use to try, for the bees have no crowbars with which to pry the springs apart and return.

I may tell you later what a colony of bees will do, with the queen confined to seven Simplicity frames, provided there is room for expansion and contraction. S. E. MILLER.

Bluffton, Mo., Aug. 10.

[Thanks, friend M. The evidence is accumulating that there are great possibilities in the bee-escape; and it begins to look now, at least for many of us, as if the old nuisance of shaking and brushing combs could be dispensed with. I presume, for very large apiaries, especially for out-apiaries, it will be necessary to brush and shake the combs, for extracting; but certainly in our home yards the bee-escapes may be used to great advantage; and they may also in out-apiaries, providing one can afford to drive to an out-yard the night before, and put on bee-escapes; then the next morning go down and take off the honey. If the bee-escapes are already at the yard, and one has a good Victor bicycle, the time of going to and from the yard will be reduced to a minimum. This is no idle theory, for I have had experience right in this line—not in putting on bee-escapes at night in an out-yard, but in making long trips in a short time. While I *can* make a trip to our yard, seven miles away, in 30 minutes, I never take over 45; and I am not fatigued, either, for a good day's work.] E. R.

CLOSED-END FRAMES IN A TIGHT-FITTING HIVE.

DOES SWELLING, THE RESULT OF MOISTURE, CLOSE UP THEIR END PLAY IN THE SPRING?

Ernest Root, in GLEANINGS for July 15, contends that, the deeper are close-fitting frames, the greater is the difficulty of manipulating them in a tight-fitting case, *a la* Heddon. He says that deep frames catch and draw out by "hitches," as in the case of a bureau drawer if it fits snugly and is not pulled out perfectly straight. I am inclined to agree with Ernest in this matter; not so, however, when he says that the right amount of "play" or space can not be maintained between the ends of the frames and the outside case on account of the effects of moisture. Lumber does not swell *endwise;* and by halving together the corners of a hive in such a manner that the inside of the end pieces comes against a shoulder cut in the ends of the side pieces, the hive can never be any smaller *inside* in the *direction of its length*, no matter *how* much the lumber swells. Now for the frames. Their top and bottom bars extend their extreme length, and can never be any longer from swelling. The ends of the top and bottom bars fit into notches cut into the ends of the end-bars, or uprights, and are nailed fast, the nails being driven within $\frac{1}{8}$ of the end of the top or bottom bars. The end-bars are $\frac{3}{8}$ thick, and perfectly free to swell in either direction from where they are fastened by nailing. In other words, they can and do swell both ways from the nailing. Outside of the nailing, at each end, is $\frac{1}{8}$ of wood that can swell in such a manner as to lessen the distance between the ends of the frames and the outside case. This is all the wood there is about the *whole hive* that can swell in such a manner as to lessen this space. One-fourth inch of ordinary pine wood will never swell until it is more than $\frac{5}{16}$ thick, while $\frac{1}{8}$ play can be allowed if necessary.

My Heddon hives and frames are made exactly as I describe them. When I put them into the cellar in the fall I always loosen up the screws, as I well know that the end-bars will swell *crosswise* of the hive. Ordinarily the screws press the frames back about $\frac{5}{16}$ from the sides of the hive. When taken from the cellar the end-bars have sometimes swelled so much in some hives that this $\frac{5}{16}$ space is entirely closed up; but between the *ends* of the frames and the *ends* of the outside case there is ample space to allow the manipulation of the frames. I allow only $\frac{1}{16}$ "play," yet the blade of an ordinary case-knife might be easily thrust down between the ends of the frames and the ends of the case in the most swelled set of frames I ever saw. If hives and frames were made as I have described, and $\frac{1}{8}$ play allowed, they might be sunk in the millpond a week without the frames being swelled against the ends of the case—it couldn't be done.

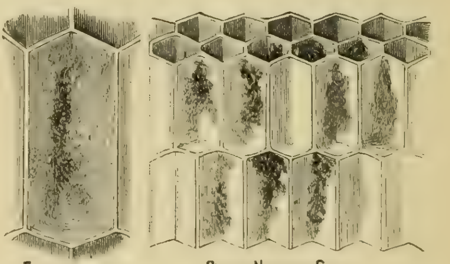
[The above is an editorial that appeared in the *Bee-keepers' Review* for Aug. 10, page 212, that perhaps needs some reply. In the first place, I will say that Heddon hives, made in the manner Mr. Hutchinson has here described, would be practically proof against frames sticking, because of swelling either of the ends of the hives and the ends of the frames; and so far I agree with Bro. Hutchinson. But the hive we have is made quite differently. I believe it came from Mr. Heddon in 1886 or '87. The ends are halved $\frac{3}{8}$x$\frac{1}{2}$, and are nailed in such a way that $\frac{1}{2}$ inch at each end may swell toward the frames. The frame-ends ($\frac{3}{8}$ in. thick) are dovetailed to the top and bottom bars. This gives $1\frac{3}{4}$ inches of wood that may swell, instead of $\frac{1}{8}$, as would be the case with Mr. Hutchinson's hives. Mr. H. says lumber does not swell endwise. I know this is a current impression. But let him or anybody else try the experiment, and it will be found there is a *slight* increase in length in dry to wet lumber.

I have no accurate data before me to show just how much difference there is in shrinkage *widthwise* from wet to dry lumber; but every year we buy up immense quantities of basswood lumber, and we always order it sawed $2\frac{1}{8}$ thick. This will shrink to two inches, and sometimes a little less. I am well aware that basswood will shrink a little more than pine; but in $1\frac{3}{4}$ pine there would be a shrinkage from dry to wet of somewhere about $\frac{1}{16}$ inch. Brother Hutchinson will say there is yet a whole $\frac{1}{16}$ inch to be taken up by swelling before the frames are wedged tight. Not so. If he will examine his frames I think he will find that they are a trifle diamond-shaped. This tendency, however, will be so slight as almost not to be detected by the eye; but if you place a square on them, you can see. When these frames are filled out with combs, or are wired, they are practically rigid. Several of the Heddon frames in our hive were all the way from $\frac{1}{16}$ to $\frac{1}{8}$ from square, so that the diagonally opposite corners of them touch the ends of the case. Now, a very *slight* swelling would make these frames *fast*. But there is another factor comes in here. I find that, in close-fitting frames, propolis will somehow get down in between the backs of the frames and the ends of the hive. Now, in cool weather in early spring propolis is hard and unyielding. Taking into account the manner in which our hive is made, and the fact that some of the frames are not absolutely square, no matter how perfect their sawing, and the propolis accumulations that will wedge in, shrinkage and swelling *do* have quite an effect. The frames of our Heddon hive were wedged tight *endwise* from swelling last spring. After it warmed up they became loose. But the matter of moisture does not begin to assume the importance in the way of an objection that inaccuracy of manufacture has upon the close-fitting frame. As I explained in my original article on page 595, unless there is perfect accuracy of workmanship, or unless manufacturers invariably go by the same gauge, which they do not in standard sizes, the close-fitting frame would not be made interchangeable with hives throughout the country, like frames having a bee-space back of the end-bars.

FOUL BROOD.

HOW TO TELL WHETHER COMBS HAVE HAD IT.

Our readers will remember that, some time ago, we gave an illustration of foul-brood comb—comb that had, at some previous time, held the diseased brood. We sent samples of the comb to our engravers, but they did not at the time succeed in getting Mr. Taylor's idea. We requested him to send another sample, and we would try again. We made another engraving, which, though not entirely satisfactory, is perhaps sufficiently accurate to illustrate the idea which friend T. wishes to bring out. To be able to recognize promptly combs that have once held the disease is a very important matter indeed. Mr. Taylor writes:



Enlarged cell. **Cells Natural Size.**

Friend Root:—I send you a rough pencil-sketch, giving something of my ideas of how it should appear. I also send you a piece of comb containing the diseased and dried-up larvæ. To see the dead larvæ to the best advantage, stand with your face toward the point of the compass where the sun is, and hold the comb down in front of you, with what was the lower edge away from you, so that the sun lights up the upper side, and so that your sight strikes across it at an angle of 30 or 40 degrees. This will make the presence of the disease very evident.

R. L. Taylor.

Lansing, Mich., June 1.

[In a former article Mr. Taylor said: "The dead brood is entirely dried up—mere scales, almost the color of the comb itself, lying fast to the lower sides of the cell, and drawn back more or less from the opening." In the sample of comb sent, there seemed to be a sort of residue a little darker in color than the comb itself, lying fast to the lower sides, as explained. It is, perhaps, exaggerated a little bit in the engraving; but the purpose is to show about how it lies on the bottom sides of the cells, or what are the bottom sides when in the hive. It seems these scales are nothing but maturated masses of foul brood dried up, and which the bees are loth to clean up.]

THE NORTH AMERICAN AT ALBANY.

TO THE VERMONT BEE-KEEPERS.

The North American Bee-Keepers' Association will meet soon in Albany, N. Y. A year ago I was making calculations to attend this meeting; but, how little can we foresee the future! However, my interest in its success remains. I want the bee-keepers of the east, and especially of Vermont, to show the world that they are not behind the times. I wish that every person who has stood by the Vermont Bee-Keepers' Association during the past three depressing seasons would find time and disposition to attend this meeting. Many men of national *bee* reputation will be there; the meeting will probably hold three days, and Albany is a city in which there is much to see. You have had a good season this year. The farm crops have all been good, the rain plenteous, and all nature has done her best. Now take a rest and holiday by visiting Albany during the time of the North American. All the great bee-men of Central and Western New York are preparing to go. Massachusetts will not be far behind, and there will be some there from the great West. E. R. Root, and perhaps others from Medina, will try to be present. Next year it will probably be held in the West, and the good opportunity may not come again; so, I say, attend and *talk*, and make this the best meeting of the North American, and make President Elwood and Secretary Dadant happy. I should like to see twenty bee-keepers of Addison County express their intention to go, to President V. V. Blackmer, of Orwell, Vt., when I am sure he can make arrangements for reduced rates from some point. I was sorry the Vermont Bee-Keepers' Association did not affiliate last winter with our International Association, but trust they will show the world they still live. J. H. LARRABEE.

Agricultural College, Mich., Aug. 15.

SHIPPING COMB HONEY.

RECENT RULINGS BY THE WESTERN CLASSIFICATION COMMITTEE.

After our editorial in regard to the above subject appeared in our Aug. 1 No., page 614, the Miller Bros. wrote to J. T. Ripley, of the Western Classification Committee, The Rookery, Room 733, Chicago. To this J. T. Ripley replies:

Miller Bros.—Gentlemen:—Answering your favor of the 8th inst., I think if your shipments of honey in comb are securely packed and boxed, and marked conspicuously, "Glass, handle with care," on the outside of the packages, that no difficulty should be experienced as regards breakage. Large quantities of glassware are constantly being handled by transportation companies upon which the breakage is insignificant. J. T. RIPLEY, *Chairman.*

Chicago, Aug. 10.

Miller Bros. promptly forwarded the correspondence to us, and to this our business manager, Mr. Calvert, replied as follows:

J. T. Ripley, Chairman Western Classification Committee:—

Dear Sir:—In looking over the recent rulings of the Western Classification Committee we noticed one or two rulings in regard to items affecting our industry. We mail you a copy of our publication, GLEANINGS IN BEE CULTURE, in the August 1st number, p. 614, of which appeared the clippings below.

GLASSED CASES OF COMB HONEY MUST HAVE GLASS COVERED FOR SHIPMENT.

Among the recent rulings of the Western Classification Committee we find the following: "June 23d. Honey in comb, packed in boxes having glass fronts, should not be received for shipment unless fronts are fully covered and protected." From our experience this ruling will work mischief unless honey is crated as outlined on p. 643. If comb honey is so crated I think it will pass under the ruling, and it was no doubt intended to enforce such crating or protection that the ruling was made. If, however, instead of crating your honey you simply cover the glass with a board, as you will no doubt be obliged to do unless the ruling is changed, your honey will fare worse than before. When, by means of the exposed glass, the freight-handlers can see the contents they are more likely to handle with care than if in a solid box; at least this has been our experience. From this point of view the ruling is unjust to bee-keepers; and if they desire to have it changed, the person to write to is J. T. Ripley, chairman, Room 733, The Rookery, Chicago, Ill. Remember, this ruling applies on the roads west of Chicago and St. Louis, not in the territory east of these points.

In response to this you have doubtless received some letters from honey-producers. Your answer to one, Miller Bros., Bluffton, Mo., under date of Aug. 10th, press copy of which we attach, has been forwarded to us. Your statements there would seem to indicate that you had more concern for the glass inclosing the honey than for the honey itself. Now, one of the chief objects that bee-keepers have in putting glass on the cases containing honey is that parties handling the cases can see what they contain, and will thus be induced to handle them with greater care. Your statement, that "large quantities of glassware are constantly being handled, upon which the breakage is insignificant," it seems to me does not have any bearing on the case. This glassware is safely packed in hay or straw, and will stand reasonably rough handling; but honey in the comb will not stand such rough handling. If the honey is roughly handled, the combs break down, and it begins to leak, and the transportation companies have a worse job on their hands, oftentimes, than they realize. Every thing that will contribute to the careful handling of comb honey should be done, it seems to me; and your recent ruling, that the glass must be covered before such honey is received, looks to me like a step in the wrong direction, for our experience has been that honey so covered has not received the careful attention that it does when the glass exposes the honey to view. Let the case be marked ever so plainly, it doesn't have the effect that a view of the article itself does. Then, too, your advice to mark the packages "glass, handle with care," it seems to me, a little questionable, for the contents of the packages is honey, not glass. If the packages are to be marked glass, what is to hinder billing the stuff glass, and shipping on a lower rate? In the interests of bee-keepers, as well as of the transportation companies, we think the ruling ought to be changed.

We desire, also, to call your attention to another item in your rulings. Under date of July 6th, you incorporate a new item in the classification called "bee-comb stuff," and, in parenthesis, artificial honey-comb. This name is misleading. I suppose you have seen in the papers accounts of comb honey being manufactured without the aid of bees, all of which is entirely false. We inclose you a card which we have distributed widely for the last four or five years, and have challenged such slanderous reports for proof, but no proof has as yet been forthcoming. In view of these slanders, the wording of this item in the classification is misleading; and because of this misleading, it is unjust. We would suggest that you change it to the name that all manufacturers of the article give it; namely, comb foundation, or, if you choose, "bee-comb foundation." Every bee-keeper knows what that term is, and the agents having any thing to do with it will soon learn it.

Very resp'y,
A. I. Root, per J. T. C.

In reply to the letter above we have received this very gratifying letter. We have been granted some of the points we sought for, though not all:

Mr. A. I. Root:—Receipt of your favor of the 15th inst. is hereby acknowledged. I am pleased to note the demonstration which you appear to make, that comb honey can be safely transported if properly packed by crating. Evidently, such shipments might be inclosed in boxes, thus meeting the conditions of the ruling referred to, and protect shippers from loss and damage. If, in your judgment, it would be better to mark such packages, "Honey in comb, this side up with care," or, "Handle carefully," there is, of course, no objection to such marking. I have changed the wording of the article referred to by you as "Comb Foundation," and it will appear, in the next sheet of rulings issued, as "Bee-comb Foundation" (beeswax in sheets), which I presume will meet the point raised by you. There was no intention to misrepresent or do injustice to any interests by the wording originally adopted.

J. T. Ripley, Chairman.
Chicago, Ill., Aug. 18.

Mr. Calvert replies to this as below:

J. T. Ripley, Chairman Western Classification Committee:—

Dear Sir: — Replying to your favor of the 18th, we wish to thank you for changing the item of "Bee-comb Stuff" to "Bee-comb Foundation" (beeswax in sheets). We did not intend to convey the idea that your former wording, which conveyed a wrong impression, was done with the intention of injustice, but that it would be injustice to allow it to stand so, when advised of the facts.

With reference to your ruling on comb honey in boxes with glass fronts, we don't gather from your letter that you propose any change in this. It may be that you intended to allow honey, crated in the manner we outlined in the clipping sent you, to pass as though it were boxed. One of our correspondents writes that this will do very well, when there is sufficient in the shipment to crate up in this way; but when only one or two cases are to be sent it can not well be so crated, and we are still of opinion that it would go much more safely without the glass being covered, even if it is not crated; and if crated honey is to be passed, the ruling will have to be changed somewhat so as to cover it.

Very respectfully yours,
A. I. Root, *per* Calvert.
Medina, O., Aug. 20.

Mr. Ripley replies:

Mr. Root:—Answering your favor of the 18th inst., I intended to convey in my letter of the 18th, that, if shipments can be crated and then *boxed* they could be safely carried without having any exposed glass surfaces. I still think the provisions of my ruling are reasonable, and that, with a slight exercise of ingenuity on the part of shippers in packing, they can be complied with to the advantage of all parties interested. Packages with exposed glass surfaces are very objectionable from a transportation standpoint, for reasons that should be obvious.

J. T. Ripley, Chairman.
Chicago, Ill., August 21.

FIXED DISTANCES; SULPHURIC ACID FOR RENDERING WAX.

C. P. DADANT ENTERS A PROTEST AGAINST SOME LATELY DEVISED THINGS.

Friend Ernest:—I should like to say a few words to help Bangs against our good friend Dr. Miller in regard to the closed-end frame. Bangs says he wants to have a chance to space the combs to suit himself, and the doctor seems to think he has "got" him when he proves to him that he spaces all his frames at exact distances. The trouble we found with fixed distances was, that we could not change one frame for another, or turn a frame wrong end foremost, when we used them. I have not the least doubt that, if you always put the frames back into the same hive, and in the same places that they formerly occupied, you will find no trouble in fixed distances. But in that case, where is the advantage of using movable frames? Suppose we have a weak colony short of stores, and wish to help that colony with a heavy thick frame of honey from another hive. With the loose frame we shall have no trouble; but with these fixed distances we shall very often mash the combs on both sides of the thick comb so given. Dr. Miller tells Bangs that he will crush as many bees with burr and brace combs as he will with the closed end; but I say that, if your hives are of equal age, you will find as many burr and brace combs in the one as in the other.

You say that, in your Shane yard, you have but one hive with burr-combs. And, pray, would you have very many of these in this apiary, on loose frames, if the hives were like these, only one year old? It is not in the first one or two seasons that one finds these impediments to neat work. It is when the hives have been long in use by the bees, and opened but little by the bee-keeper, and especially when the bees have found themselves crowded for room. There is no doubt that closed-end frames have some advantages that will never be found in the open end frames, the main one being their greater warmth for winter; but for the everyday manipulations of practical bee-keeping, queen-rearing, artificial swarming, strengthening and helping weak colonies from stronger ones, uniting, and the thousand and one manipulations that are so often repeated in a practical apiary, we can not see how any one can hesitate between the two styles.

One word about horizontal wiring. So far as we know, the credit of originality is due to friend J. Vandervort, in whose apiary I saw this used first, and we only imitated him. It is certainly much superior to vertical wiring.

One more word on another subject. I see that you are advising bee-men to use oil of vitriol to render their wax. I believe it is a mistake, for we have always noticed that beeswax rendered thus had an unpleasant smell, and we believe its general use would have a tendency to render the wax unfit for foundation. You will remember that we told you that we used it only for our residues, and such wax as *could not* possibly be cleaned otherwise; but we are very particular to use this wax only in a very small proportion to the water-melted wax. The fact is, we do not use this method on more than two per cent of all the wax we handle, and we consider wax thus cleaned as very much inferior to that melted by the ordinary methods. We should very much object to buying any beeswax produced by bee-keepers, rendered in this way, for the sweet balmy odor of the hive is all taken away by this process. We are satisfied that a part of our success in foundation-making is due to the fact that we used this way of cleaning less than several others to our knowledge, thus preserving the natural bee smell in the greater part of the foundation.

Hamilton, Ill., Aug. 22. C. P. Dadant.

[Thanks, friend C. P. I hope it is not my policy to demolish every thing in the way of objection to fixed distances; but I can not help saying that all those who have tried fixed distances, such as Elwood, Hetherington, and many others, do not experience that trouble in interchanging. Indeed, I saw Hoffman and Elwood both interchanging their combs; neither have we run across any of this unpleasant bulging, except where a frame of foundation was inserted in the height of the honey season, between two combs. The bees would bulge the latter into the frame of foundation. This does not prove serious, because, when we put the two fat sides of two combs together, the bees will shave them down, and reduce every thing to an even thickness. This we do every year with loose frames to restore them to normal thickness. Still, as I have said a number of times before, I know there are many who do not like fixed distances, on account of their methods of working and habits of thought. I am glad, therefore, you have stuck up for our friend Bangs. Some, like yourself, prefer a large frame, while others think a Langstroth is all-sufficient; so with regard to fixed and unfixed distances.

Yes, I realize all you say, that top-bars for the first season, either thick or thin, are not as *apt* to have burr-combs as when they have been in use a number of seasons. But, friend Camille, I have been trying both thin top-bars, ⅞ inch wide, alongside of thick top-bars one inch wide. After two years of use, there are burr-combs built on top of the thin bars, but none on the thick ones. Nearly all of the thin and narrow bars that we have put into the apiary have burr-combs—at least a few—the first season; and, besides all that, there have been reports from those who have tried thick and wide top-bars seven or eight seasons, and have had no burr-combs. Hoffman had frames that I saw that had been in use some twelve or fifteen years, quite free from these little nuisances on top.

Although we may disagree in regard to fixed distances, we join hands on your method of wiring. I am glad to know that the credit of originality belongs to Mr. Vandervort. Is he the one who discovered that drawing the wires loose makes all the difference between success and failure?

As you are the largest foundation-makers in the world, it may be well for us to heed your warning and go a little slow in this matter of rendering wax with sulphuric acid. So far we have used it only in our dirtiest refuse, such as we could not render in any other way. We have tried, however, a few very black cakes of wax, to see if we could not lighten them up, and the result has been highly satisfactory as to color. Since you have spoken of it, I notice a little odor, though very slight, clinging to the wax so treated; but I *think* that, if it is melted up into foundation again, this odor will disappear. In the first place, the acid is diluted some 300 or 400 times—so weak, indeed, that the hands can be dipped into it with impunity, and I do not know but we could drink quite a quantity of it with no injurious results. It certainly can not be poisonous to man or to bees any more, it seems to me, than soap used for lubricating rolls in foundation-making. We find that there is a very slight residue of particles of soap left on the foundation, and this is not objectionable to bees.—See Editorials.] E. R.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 192. *Do you think you would have been richer or poorer to-day if you had never had any thing to do with bees?*

Poorer.
California. S. R. Wilkin.

I don't know, but I am going on with the bees.
Illinois. N. C. J. A. Green.

Been a deal poorer, and not nearly as fat and well.
Illinois. N. W. C. Mrs. L. Harrison.

I should have been poorer in wordly goods, and much poorer in pleasurable experiences.
Michigan. C. A. J. Cook.

I am sure that the bees have increased my possessions, as I am richer on account of the bees.
Wisconsin. S. W. E. France.

I believe I should have been poorer; for, till this season, my bees have been a source of income, and the attention given them has not materially interfered with my other business.
Ohio. N. W. A. B. Mason.

Well, that's an awful question. I certainly could not have been poorer. As to whether I should have been richer or not, the Lord only knows—I don't.
New York. E. Rambler.

There is no "thinking" about it, when we know the result. I have always realized a good interest on my investments and troubles. There is no living in it except for specialists, unless a large number of colonies are kept.
Louisiana. E. C. P. L. Viallon.

We certainly can not tell; but what we now have was nearly all made from the bees. It is true, that we are supply-dealers; but up to 1883 it was our honey crops that gave us profits. Our honey crop of 1883 netted $2800, labor and expenses paid.
Illinois. N. W. Dadant & Son.

That depends upon the success I might have had in some other kind of business. I might have had more money and less knowledge of the laws of nature, and perhaps less enjoyment, had I never kept bees. Dollars are not the only riches we should strive for while passing through this stage of eternity.
Vermont. N. W. A. E. Manum.

A question like the above reflects suspicion on the pursuit of bee-keeping, but amounts to nothing. Apply the same question to any branch of home production, as, for instance, wheat culture, corn or potato production, hog, cattle, or sheep raising, and see what an amount of blasted hopes you will stir up. We pray for better times.
Ohio. S. W. C. F. Muth.

Richer! Almost every one thinks he would have made more money with less work if he had gone into something else, no matter what his occupation. We know of more thorns in our own pathway, because it is better known. It is strange that bee-keepers do not speedily become rich, when the bees work for nothing and board themselves, and all the bee-man has to do is to exchange the honey for money. Either he doesn't get enough honey, or he exchanges it for too little money.

New York. C. P. H. Elwood.

That kind Master, who is ever willing to guide the plans and lives of those who wish to be guided by him, made it very plain to me that I ought to take up bee-keeping. Such being the case, I feel sure that, in some respect, it has been to my profit to do so, although the amount of money I have realized from it has not been large.

Ohio. N. W. E. E. Hasty.

The terms richer and poorer come to different persons with widely different meanings. I've never made much money with the bees, and yet I feel *well paid* for all the hard work and care bestowed upon them. It would be indeed a sad state of affairs if money were the only compensation we get for our labors.

Ohio. N. W. H. R. Boardman.

Well, I declare I don't know. I have done better out of the bee-business than 99 out of 100; but as I begin to pay attention to other lines of business, I begin to think perhaps I should have been better off if I had never seen a bee. I find that the same amount of well-directed thought and energy in other lines of business will turn out as much or more money than can be realized from the production of honey and bees.

Michigan. S. W. James Heddon.

Thoughts about such a matter amount to but very little. The destiny of all is shaped by an all-wise Providence, and happy is the man who is content with his lot after striving with all his powers to make his chosen pursuit a success. I might have been richer, I might have been poorer. I am thankful to my heavenly Father for what I have, and still more thankful for the good health and the high aspirations (aspirations that lead out toward God) which have come to me while being permitted to work with this wonderful part of his creation.

New York. C. G. M. Doolittle.

None of your business. Oh! you "didn't mean to be impertinent"? Well, if you mean the amount of money, I'd have been a good deal richer if I'd never seen a bee—that is, if I'd been alive now. But I don't crave any sympathy. I'm no pauper. I have one of the happiest homes, one of the best of wives, and I don't know any other business that would let me have so much time with either of them. I have clothes enough to keep me warm, and more food than I can eat. I've had lots of fun with the bees, and am healthier and younger than I was 25 years ago. I'm expecting a good time while I live, and a better one afterward. What's money to a man who can't stay home to enjoy his best earthly treasures? How rich does a millionaire feel, with a bad liver and a sour stomach? Yes, I'm richer for the bees.

Illinois. N. C. C. Miller.

What a question! Who is sufficient for these things? What *might* have been is a sad refrain, and has had an echo in the hearts of most of the human race. A good deal of destiny seems at times to hang on a very small pivot. A few words seem to have decided the fate of Napoleon; the swarm of bees, that A. I. Root hired the man to catch for him, carried lots of fate on their wings as they went over his head. In my case I certainly became no poorer by getting bees 30 years ago. When I started housekeeping I regretted that I had not sufficient means to buy a good farm, that I might be a farmer; but, not having the money to buy largely, I bought a small place and kept bees. Time has satisfied me that bee-keeping in my case was preferable to farming.

Wisconsin. S. W. S. I. Freeborn.

[I would call particular attention to the answers given by friends Muth, Elwood, and Miller. It is true, as Mr. Muth says, you can stir up blasted hopes in almost any industry by touching the right chord, and bee-keeping is no exception. It is also true, that, as Mr. Elwood remarks, almost every one thinks he *would* have made more money if he had gone into something else. Dr. Miller says, very truly, "What is money to a man who can't stay at home and enjoy his best earthly treasures?" When we take up the question as to whether bees pay, we need to consider something besides the mere matter of dollars and cents. Dr. Miller thinks he would have been richer—that is, *if* he had been alive. It is worth something to *be alive*, to have health, enjoyment, and fun; and where in this wide world can we find any industry that will afford any more diversion, more field for study, and more opportunity for real fun and *health*, than bee-keeping.] E. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

IS THERE ANY WAY TO PREVENT OR CONTROL SWARMING WHEN RUNNING FOR COMB HONEY?

Is there any way to prevent swarming or to control it to some extent in working for comb honey? My bees are disposed to swarm, and do nothing but swarm two and three times a week. I have ten colonies in Simplicity and Dovetailed hives. We returned swarms immediately, and removed two frames of brood from the center, and replaced with frames of foundation, cutting out all queen and drone cells, and they would swarm again in two days. Our hives are all made eight-frame by the use of dummies. We enlarged the Simplicity to ten frames, cutting all cells, and still they would swarm in two days. We have left them out 48 hours, according to Dadant, and yet they would swarm. Our queens are all clipped; and when the swarm issues, if some one is not there they will unite with another colony instead of coming back to their queen. Lester Childers.

Morrow, Kan., Aug. 13.

[Yes, you can do something toward preventing or controlling swarming by running for comb honey; but when bees get excited by the swarming-note, the whole apiary is more or less demoralized. When they are in this condition it is poor policy to return swarms to their old stands. In fact, it is poor policy under *any* circumstances. It is natural for them to swarm, and you must gratify them with a new location and a new hive, or at least a new condition of things. If you do not desire increase, we would recommend Heddon's plan of preventing after-swarms. For a description of his method, see his book, or Mr. Hutchinson's "Advanced Bee Culture." We have sometimes, where we desired to keep down increase, put a swarm in a hive on top of the old one; then after the season is over, put them all into one hive, taking out the surplus combs. Cutting out all cells helps; but it is, as the Dadant say, not reliable.

When several swarms come out together they are very apt to unite, and go with the queen or queens that are in the air. Mrs. Golden's swarm-catcher, illustrated in our last issue, might help very much in a case of this kind, provided you have one on hand and are spry enough to catch them before they all get into the air.] E. R.

THE MAMMALIAN CATERPILLAR.

I have received from Mr. C. H. Longstreet, Mount Dora, Fla., a most curious caterpillar. It is known in science as *Lagoa opercularis*. It is the larva of a moth, and is peculiar in being clothed with long fur-like hair. As it creeps along one can not but think of some of the weasel family. I showed it to my class as the mammalian caterpillar. The color of the hair is light brown, with some dashes of white. Beneath the hair are stiff bristles, which sting about as does the nettle. It pupates in an oblong cocoon fastened in some forked twig of the tree on which it feeds. The side of the cocoon has a raised spot which resembles marvelously a bud. The moth escapes from the cocoon by a lid much like that seen on a queen-cell after the queen comes forth. I suppose this gave the name, *opercularis*. This insect larva feeds on oak, and occasionally on orange. Mr. L., I think, found this one on the orange—at least, he inclosed an orange leaf in the box which contained the larva. The moth which comes from this larva is pale yellow, lined with gray. It is about the size of the cabbage-butterfly. As this specimen is new to our large collection, I need not say that I received it most gladly.

Agricultural College, Mich. A. J. COOK.

THE IGNOTUM TOMATO, ETC.

Friend Root:—GLEANINGS for Aug. 1 is just received, and its new cover is much admired.

Your talk about crops, and prices you are getting, is very interesting to us down this way, where all vegetables and fruits are raised in such profusion by every family, in town as well as in country, that we might say we have no market, and not miss the truth very far. Extra early vegetables, however, can be sold, and I wish you to know right here how well pleased we all are with the Ignotum tomato seed which I purchased from you last spring. These were sowed under glass, so that the plants were transplanted for outdoor culture by the time other people were sowing their seed; hence I had tomatoes far ahead of my neighbors, and was able to sell large fine Ignotums at the extravagant price of 10 cts. per dozen, or about 2 cts. per pound.

I like it better than the Ruby, Mikado, Trophy, or any other kind I have grown; and it surely comes up to the general-purpose standard you give it. My vines are loaded with large, round, even-running tomatoes of finest quality of size and flavor, and we have been having them a long time.

Melons sell here now at from 5 to 20 cts. A 30-pound melon brings what you get for one pound of cauliflower.

As you say of that potato, and as I wrote you when sending the seed, one season does not always bring out what a vegetable or fruit is. A second year will often change our estimate of a fruit that we have condemned the first. But it is also true, that a valuable fruit in one climate or section proves to be worthless in another; and, quoting you again, it seems as if in horticulture as in other pursuits, to obtain the best results takes constant care, skill, and work. Still, what an incentive there is to have a full variety of all these gifts from the great Giver, around us, and to have each type as near perfection as we can make it.

The honey crop is about gathered here. We now let them fill up with bitterweed for winter. My crop was about 100 lbs. per colony, and netted 7 cts. for extracted and 12½ for section.

I have a novel water-feeder—a plant called water-hyacinth, a succulent plant that will grow in a vessel of water with a little earth, stones, etc., on the bottom. It shoots up many joints with bulblike stems and leaves, which fill a large pan or earthen receptacle very soon, covering the water except in small spaces. The bees find it just the thing, and abandon the well and every thing else for this natural drinking-font. But it is a thirsty plant, requiring plenty of water. C. P. COFFIN.

Pontotoc, Miss., Aug. 6.

BEES NECESSARY FOR FERTILIZING PLANTS.

In GLEANINGS you say something about not succeeding with cucumbers. If you should ever come west of Chicago it would pay you to come to Minneapolis, just to see a greenhouse belonging to a German gardener. I do not know the exact size, but I think it covers nearly two acres, besides acres of hotbeds. He devotes the fall and early winter to lettuce, and then fills them up with cucumbers, and they are still selling from them, although outdoor cucumbers are now in the market. His sales from cucumbers alone would amount to several thousand dollars. During the winter and spring he is obliged to keep a hive of bees in each house to fertilize the blossoms, or else very little fruit sets. Last April his bees all swarmed out, and he lost all the queens but one, and a few weeks after he came to me for more bees. He told me in that time he had lost more for not having them than the amount he paid me—$27.00. His cucumbers in the greenhouses do not run on the ground, but on trellises of cord and wire slanting up about the angle of the roof of the house. Any one, by stooping a little, can see the whole length of the greenhouse under the vines, and see cucumbers hanging down all around. I have a small farm, and, in addition to my bees, I keep eight or ten cows, and raise some small fruit, chiefly currants and raspberries. The honey crop last year was nearly a failure, and this year does not promise more than half a crop. I hope when you come west again you will come this way, and I will meet you and take you around. E. R. POND.

Bloomington, Minn., Aug. 6.

HOW TO MAKE EIGHT-FRAME HIVES OUT OF TEN-FRAME SIMPLICITIES.

Will you please tell me what is the best plan to reduce my 120 Simplicities to eight-frame hives? A ten-frame hive is too large. The season is so short that the bees can not fill and seal them. JNO. H. MULLIN & SON.

Oakland, Tex., Aug. 8.

[If the Simplicities were nailed together with one board lapping on to the other it would be an easy matter; but, unfortunately for your purpose, they are not. The only practical way is to put in dummies in the extra space. Dr. Miller had originally ten-frame Langstroth hives. These he made into eight-frame by sawing through the ends at the right point. He then removed the short pieces hanging to the sides now loose, and then nailed the side back again. The old ten-frame Langstroth caps he discarded, and made new eight-frame flat covers.]

DEVELOPING A RED-CLOVER STRAIN OF BEES.

I want to let you know how I managed to get my bees to work on red clover. For three or four years I have believed they could be graded up to work on red clover. I had the large brown and Italian, and they are all of that strain now. I commenced watching them, as they worked some on the red; and by their mark, and watching them at the hives, I soon found where the most of them belonged; and I could see a difference in the honey. Then I became satisfied that I could raise a strain of bees that could gather honey from red clover; and this spring they are just booming on it, and I commenced taking off honey the first of July, and many have filled 56 boxes, and are on the second set. The honey is not quite so white, but of a better flavor and twice as much of it. I hope others will try it. Do not get discouraged, for you will succeed, and not be sorry when you can lug in the big loads as I am doing now. JACOB CHILDS.

Amherst, Wis., July 21.

[I suppose you mean, friend C., that you have been for some time rearing queens from colonies that stored most honey during red-clover bloom. If this is so, it will be nothing strange if you get a strain of bees as large as you describe.]

SUCCESS WITH THE DOOLITTLE CELL-CUPS; BEES FOR BUSINESS INSTEAD OF BEAUTY.

I have ten colonies building cells according to Doolittle, and what a lot of fine cells I am harvesting! I am starting a lot of them every day (except Sunday), and some days two lots. His method is far ahead of any other I have ever tried; and the beautiful part of it is, that the cells slip right into the cell-protectors, without any trimming at all, except when the bees are getting honey pretty fast, when they will sometimes build bits of new comb to the cells. I found one colony this week storing honey so fast from red clover that they were building bits of snowy-white comb to the cells. Who will say that I shall not rear queens from such a queen as this, even if her bees do show but three yellow bands. Your advice, to breed for energetic workers, is to the point. If it were not for my bees' ability to work on red clover, I could hardly carry on queen-rearing now, as the white clover is dried up, and there is nothing for them to work on (to amount to any thing), except red clover. It is wonderful to see how they root down to get to the honey. I have not had to use the bee-tent yet this season, for which I am truly thankful.

My sales during June amounted to $135.50. GLEANINGS is a good advertising medium.

Morgan, Ky., July 14. J. P. MOORE.

THE HOFFMAN FRAME.

I should like to tell you of the Hoffman frames I got of you last spring. I have used several kinds of frames; but after a thorough test alongside the "thick top," I find the Hoffman far superior to any other. They are *the* frame, and will be for years to come. I find them easier to handle, save time and patience, and, so far as manipulation is concerned, free from burr and brace combs. The brood-combs are smoother and nicer. They are not difficult to get apart, as was supposed, on account of propolis. E. E. EDWARDS.

Alexandria, Ind., Aug., 1891.

[You have come to the same conclusion we have, and I feel sure other unprejudiced persons must come to a similar conclusion.] E. R.

THE SELF-HIVER; HOW IT DID AND DIDN'T WORK.

In an issue of GLEANINGS some time ago you called for reports of the self-hiver, so I will give you my experience with it. I placed a hiver at the entrance of a hive June 25, and on the 26th a swarm issued, but it didn't work, and I had considerable trouble in getting the queen into the new hive. I then modified the hiver thus: I tore the perforated zinc from the box B, and put in its stead the zinc from box C, and then tore the wire cloth from the second division of box B and beveled the lower edge a little. I place the new hive close to the old one, and raise it a couple of inches above it on four half-bricks; then put the "hiver" in place, not using box C at all, and 99 out of 100 swarms will hive themselves without any care except placing hivers and hives in place. At least, such is my experience. E. A. BOAL.

Hinchman, Mich., Aug. 10.

A SWARM THAT KEEPS SWARMING, AND WON'T STAY HIVED; WHAT TO DO.

Could you tell me what is the matter with a swarm of bees when they keep swarming out every day or two? I put them into a hive and they will come out and go back to the same hive again. I have two colonies that have done this five or six times this month, and the last week in June. F. E. HESS.

Whittemore, Mich., July 11.

[Giving a frame of unsealed larvæ sometimes makes such restless swarms contented. If this fails, give them the larvæ, and, in addition, take the queen away from them. Where bees swarm out one or two times after being put back it is better to put them into an entirely different hive in an entirely different location. Sometimes bees take a notion they just *won't* stay in a certain hive. It is best to give up to them, and put them somewhere else.]

SHIPPING DRONES EARLY IN THE SEASON, AGAIN.

In regard to shipping drones, as mentioned on page 557, please refer to page 356, 1889. Since that was written we have had two shipments made from the South in April, with entire success. To get them in the best possible shape, order ahead; and by the time they are wanted your drone brood is nearly ready for hatching when received. Of course, some are hatched. These will do all right by making the nucleus queenless. J. NEBEL & SON.

High Hill, Mo., July 14.

[It seems, friends, from the above, that, instead of shipping drones, you are shipping drone brood. This can be done, I am well aware, and I think it quite likely that quite a number of young drones could be sent quite safely in a good-sized nucleus.]

BEE-PARALYSIS (BACILLUS DEPILIS) EARLY IN THE SEASON.

Some one says that the nameless bee-disease (or "bee-paralysis") comes from the brood being overheated in combs that have a large amount of bee-bread in them, and that bees do not have it early in the season, before hot weather. Last spring, and this, some of my bees had it as soon as they began to fly. One of the worse cases I have had was the bees from a queen from Florida. If you will set the tin bars in wired frames with the edge against the foundation, instead of the flat side, they will cover but one row of cells, and the bees will cover them entirely with comb.

New Hampton, June 8. E. D. HOWELL.

[Friend H., I am sure this disease does not originate in the way you suggest. The fact that it is usually found in the progeny of certain queens as long as the queen lives, points pretty clearly to the fact that it is an inherited disease.]

A GOOD REPORT FOR THE PUNIC BEES.

I observe you think the statement of the superiority of the Punic bees is colored. I have not seen that statement, but I assure you that, if they are all as good as some I have had for two years, it will not be easy to exaggerate their good qualities. With me they are the best of all imported varieties of bees.

I also observe that some speak of extra colored Ligurian (Italian) bees. Similar beauties I had were neither more nor less than Ligurians crossed with Syrians, Cyprians, or Holy-Land bees. **WM. THOMSON.**

Auchinraith, High Blantyre, Scotland.

HONEY FROM SWEET CLOVER—WILL IT DO TO WINTER ON?

For weeks bees have worked but little except on sweet clover and spider-plant. Can you solve the mystery? Is there any remedy, and will not this dark honey kill our bees next winter? **J. G. WHITE.**

Stanford, Ill., Aug. 14.

[Honey from sweet clover and spider-plant, what little there would be of it, would be perfectly wholesome; but sweet-clover honey is not counted dark. Is it not possible that your bees have gathered honey-dew? This would be dark, or darker than any other with which it is mixed.]

WHY BEES HANG OUT.

I want to know why the bees hang out in front of the hive night and day, and do not work. They have been that way for the last four weeks with me. **FRANK JACOBS.**

Peshtigo, Wis., Aug. 17, 1891.

[The reason your bees hang out now is because it is warm, and there is probably nothing for them to do. Give, if possible, a wider entrance. If this is not practicable, tilt the cover up at one end. If they are not already in the shade, this may explain why they hang out. In this event, put on a shade-board made of thin lumber, and large enough to project four or five inches on all sides of the hive.]

TO CLEAN BEESWAX FROM PANS AND KETTLES.

Pour into your pan or kettle a small quantity of water, say half a teacupful, then add half as much kerosene; warm over the fire until quite hot; then with an old rag rub all parts of your dish. You will find this removes every particle of wax as easily as you could remove any other substance from the dish. Any kind of grease will answer, but kerosene is best.

MRS. MATTIE A. BONFOEY.

South Riverside, Cal., June 2.

[My good friend, I should be a little careful about advising kerosene in the way you do, especially where you use the utensil over the fire. Remember the many accidents, and lives lost, by the use of kerosene in this way.]

A STUBBORN CASE OF BEE-PARALYSIS.

I can't stop the nameless disease by changing queens. I will kill my bees and commence with new ones. Could I use the old hives and combs again without disinfection? If not, what shall I do? **FRED A. HUND.**

Casco, Mich., June 10.

[Friend H., it is possible that infection can hang about the hives. But nobody can settle it without making a test. Take a hive where they have had it the worst, put in a new swarm, and see whether you find more of it. See Doolittle's article elsewhere.]

TARRED PAPER FLAVORING HONEY IN THE HIVE.

I have lost about 700 or 800 lbs. of comb honey from using tarred paper in the bottom of those one-story chaff hives. It gives the honey a terrible flavor. **M. W. BREECE.**

Delaware, O., July 13.

[Friend B., I am sure that the tarred paper has nothing to do with the flavor of the honey; that is, the terrible flavor came from something else. We have used tarred paper on the bottoms of chaff hives for toward twenty years, and never heard of such a thing before.]

WHAT SHALL WE DO WITH HONEY DAMAGED BY HONEY-DEW?

My crop is ruined for sale with honey-dew. I have nearly two tons of this stuff. What can I do with it? My hives are all full from top to bottom with the disagreeable stuff.

Marissa, Ill., July 15. **WM. LITTLE.**

[I do not know what you can do with your honey unless you sell it to confectioners, vinegar-makers, manufacturers of printers' rollers, or for some other manufacturing purpose.]

AN AVERAGE OF 2500 LBS. OF HONEY A WEEK.

The bees are doing well. They are making an average of 2500 lbs. a week at present. I have 150 capped hives, and 50 weak one-story hives and nuclei. Our best honey-flow comes next month; then I expect two tons each week, and perhaps more. I have about 30 of my best hives making comb honey. The rest are working for the extractor. I sold yesterday 5000 lbs. extracted, at 5 cts. **G. W. CAMP.**

Armona, Cal., July 21.

GLEANINGS AND ITS CONTENTS.

I think the man who complains about the index in GLEANINGS is not as interested in it as I am. I always commence in front of the paper, and read it through, and then the index will do me no good. There is nothing in it that I do not like. I only wish there were more of it. Is Bro. Manum alive yet? **J. P. MEYERS.**

Fort Dodge, Iowa, July 21.

[We will let Bro. Manum speak for himself. We think he is alive yet; but he is probably pretty busy.]

SUCCESSFUL MOVING, AND BEES BOOMING ON ALFALFA.

I moved my bees, 150 colonies, from Newark, Ark., the last of May, without the loss of a single colony—pretty good success, I think. Alfalfa is just now in full bloom, and you ought to see the bees work on it. They are just booming, but they will have to boom all summer to pay back the money I have spent in bringing them out here. **ALBERT ARNOLD.**

Duff, Col., June 23.

WHITE CLOVER NEARLY A FAILURE; BUT PLENTY OF DARK HONEY-DEW.

White clover yielded no honey until about July 15. Until the present, all the honey we have taken is honey-dew, and extremely dark. The season has been extremely wet, and the prospect for a fall flow is very encouraging, as there is a rank growth of vegetation everywhere. **A. A. WEAVER.**

Warrensburg, Mo., July 30.

The basswood bloom was the least here for ten years. **C. J. BARBER.**

Rodney, Iowa, July 20.

MYSELF AND MY NEIGHBORS.

I in them, and thou in me, that they may be perfect in one.—JOHN 17:23.

Dear friends, I am speaking to you on a sick-bed. I have been here for something over a week. The doctor calls it nervous malarial fever. As he insists that what I dictate shall be brief, you will excuse me if I come directly to the point I wish to make to you just now. There have been many improvements in medicine since I was under the doctor's care toward forty years ago; and one of these is a beautiful little instrument called a *fever thermometer*. It is placed underneath the tongue, and tells whether the patient's temperature be normal. The doctor and I call it the "orthodox temperature," just for the sake of variety. Well, now, I had forgotten (or had never known) the astounding fact, that there is one fixed, *exact* temperature for the blood, not only in human beings, but in animals as well. When you stand beside your horse and pat him on the neck, you can feel that you two are brothers in at least this: That the temperature of the blood in *his* veins is the same as that in *your own*, even to the *fraction of a degree*. It seems that the Almighty, in his infinite wisdom, decided in the beginning that the best temperature for the growth and well-being of the human organism is just that point—98⅖—no *more* and no *less*. The instrument is made with only a narrow range, so that the degrees are usually divided into fifths; and with this beautiful little instrument, even a child could read the fifth of a degree, without trouble. Of course, the thermometer is self-registering; that is, the mercury, when it is pushed up the tube, stays there until the nurse can read it at his leisure. After that, he shakes it down. I questioned the doctor long and closely about this; and he said the blood remains at this exact point almost until death comes; that neither summer's heat nor winter's cold makes a particle of change, so carefully has nature fortified and guarded and prepared these wonderful bodies of ours for emergencies. Finally I burst out: "O doctor! why is it not possible to find some line of *moral* temperature running through all humanity—say among political parties, for instance—some common ground of agreement somewhere—something that can be settled *once* and for *ever*, to remind us that we are brothers—one through God, and through that only Son of whom we are told in our text?"

He drew a long sigh, and smilingly admitted that it *would* be a "big thing" just at the present crisis of affairs. And then I fell to thinking of *religious* denominations—that even *we* are not settled conclusively on *very* many things; and then I thought of one thing of modern date that, after all, seems almost parallel to the fever thermometer. There is an organization—I was going to say in *our* land; but, thank God, it really extends throughout a great part of the *whole world*—an organization where all Christians of whatever denomination drop differences of opinion and circumstances of every kind, and meet and *work* together with about as much *singleness of purpose* and *unanimity* as the little instrument tells us of; viz., that the temperature of every man, woman, and child, high or low, rich or poor (in *health*), is absolutely always at one and the same point, even to the fraction of a degree. I will tell you what this society is. I have some very good Christian friends who can not think exactly as *I* do, and I can not think exactly as *they* do, and no amount of *talking* will help the matter. Suppose we, for the sake harmony, should say:

"Here, Lord, we bring our differences of opinion, and things we can not agree upon, and lay them at thy feet, leaving thee to do with them as thou seest best. And here before thee we clasp hands in brotherly love—in love to thee, and in love to all the rest of humanity whom we find on the face of the earth."

And this is what this Christian Endeavor society has done. And now my good young friend Mr. Calvert will tell you of the wonderful meeting that has recently been held by this society of Christian Endeavor in Minneapolis—probably the largest assembly of Christian workers the world has ever seen.

REPORT OF THE INTERNATIONAL CHRISTIAN ENDEAVOR CONVENTION, HELD AT MINNEAPOLIS, JULY 9 TO 12, 1891.

The tenth international Christian Endeavor convention has passed into history as the largest and doubtless the most enthusiastic and spiritual gathering ever known in the history of the church. No doubt most of you have read somewhat of this meeting already, as there has scarcely been a paper, religious or secular, in all the country, that has not at least mentioned it, if they did not fully report it.

The Ohio train, with over two hundred delegates, reached Minneapolis just an hour before the opening of the convention; and, not having time to find our lodgings, we marched at once to the exposition building, where the convention was held. We first had to fill out registration blanks, for which we received a program, a leaflet of 24 pages, with selections from the new Christian Endeavor edition of Gospel Hymns No. 6, and a badge, which we must wear to gain entrance to the hall before the hour of opening each session. Entering the hall we found tacked to the posts, in conspicuous places, and in bold letters, the names of each State and province over the section set apart for their delegation. In front of the platform, on the floor, was the place assigned to Illinois; to the right, Ohio; to the left, in the gallery, Indiana, Massachusetts, Michigan, Nebraska, and so on throughout the vast hall; each State was gathered under its own banner with its chosen inscription.

Notwithstanding the immense jam attending registration, the hall was pretty well filled at the hour of opening; and at 4:20, Pres. Clark, or, as he is familiarly called, "Father Endeavor" Clark, said, "Let our first words be the voice of song," and announced Coronation—"All hail the power of Jesus' name!" and, oh that you might have joined that mighty chorus! It would have thrilled you as you were never thrilled before. One of the most inspiring parts of all the convention was the singing, of which we had much. It was no effort to sing in such a company; indeed, it would have required a greater effort *not* to unite in those grand melodies of praise.

After preliminary business and prayer, the first words of welcome on behalf of the committee of 1891 were spoken by the chairman, T. B. Daniels. He said the people of the twin cities were proud of their factories, lakes, and the Father of Waters; but they were prouder still to open their hospitality to the greatest army ever gathered, not for any selfish end, but for "Christ and the Church." Ours is a crusade that is sure to win. The old Crusaders fought for land; but we fight for souls; they fought with spears and with swords; we fight with a sword too, but it is the sword of the Spirit, the word of God. The eyes of the world, also our Master, are watching us, and we must ever adhere to our motto—"For Christ and the Church."

A. J. French followed on behalf of the pastors of Minneapolis. He counted it a high honor to welcome such an assembly. He told of the strength of the church in their fair city, and what they had done for temperance. They had a church for every 1052 of population — far ahead of any other city of equal or greater size in America. The saloon power entered on a crusade to extend the city patrol limits, and thus extend their influence. The churches came out boldly, opposed to the scheme. The enemy threatened, and was furious. When the election had passed, and the smoke of the battle had cleared away, it was found that the limits were just where they were before. Said he, "Ingersoll says, 'The church must go.' Certainly it must go—go into all the world to preach the gospel to every creature. Christian Endeavor with its youthful vigor and aggressive methods is destined to greatly help to make it go."

Rev. Robt. Christie spoke in behalf of St. Paul pastors, giving a hearty welcome to this new child of the church, the youngest and the best. He commended Christian Endeavor because it promotes interdenominational fellowship; and, let me say, this was the keynote of the whole convention. Nothing is so injurious to the Christian name as denominational jealousies. Such meetings as this clarify the vision. The church shall prosper when loyalty shall be tested, not by subscribing to any particular creed, but by a common loyalty to Christ. Youth has the power to influence youth, when the aged would doubtless fail. In this lies our strength. When Jesus wanted disciples he called the youthful James and John, and left the father, Zebedee. Missions are awakened, not by some learned divine or bishop, but by the youthful Carey. And by other striking examples he proved that youth is the time for Christian service. My brother, my sister, are *you* giving that service gladly, enthusiastically? If you withhold it you are missing the best things in life.

John H. Elliott, on behalf of the Y. M. C. A., spoke earnest words of welcome, telling of the close relationship between the Y. M. C. A. and the Y. P. S. C. E. He was glad that they both rejoiced in the old gospel, and had no room for the new theology and higher criticism, and other isms of the times. Response was made by Geo. H. Wells, of Montreal; and it was probably the most witty and telling address of the convention. He carried every thing by storm, eliciting applause at almost every sentence. He spoke of the scene of the convention being near the head waters of the streams that flow to the Arctic seas, the Gulf of Mexico, and the Atlantic; so the streams of blessing would flow from this convention to bless the continent. The Methodists, said he, are fiery; the Baptists like water. When these elements are united they will put each other out. Properly united, they make steam. So in Christian Endeavor. We unite them to make the steam that drives the gospel train to carry the glad tidings to all the world. Christian Endeavor is not denominational; is not undenominational; but it is interdenominational and also international. As we come from different countries, it dispels prejudice.

Around the front of the high platform on which the speakers stood were wreathed the stars and stripes and the Union Jack, united with a wreath of flowers forming the initials C. E. He called attention to the flags, "which," said he, "at first sight look different, but really are much alike. They are composed of the same material and the same colors. We be brethren. Let there be no strife between your fishermen and our fishermen, whether they catch cod or seal."

After adjournment, supper and a song service. The evening session opened with singing "Stand up for Jesus," and repeating in concert the 23d Psalm. After singing "Nearer, My God, to Thee," General Secretary Baer gave his annual report, which was full of statistics, by no means dry and uninteresting. The growth of the movement for the past year has far outstripped all former records.

A year ago at St. Louis there were reported 11,000 societies, with a membership of 660,000. This year there were reported 16,274 societies, with 1,008,980 members, and there have been gathered into the churches from the societies, 82,500 young people in one year; 307 societies are reported outside of America, of which 120 are in England, 82 in Australia; India 30, Turkey 12, China 7. Canada reports societies in every province, and 829 in all. The States having the largest number of societies in their order are as follows: New York, Pennsylvania, Ohio, Illinois, Massachusetts. Oklahoma won the banner for the greatest proportionate gain during the past year, increasing from 1 to 15 societies. Pennsylvania won the banner for the greatest aggregate gain, increasing 645 during the year. The Junior movement is rapidly growing, and 855 societies are reported. In this movement Illinois is the banner State, with 122 societies.

Thirty denominations are represented in this world-wide movement. The Presbyterians take the lead, with 4019 societies; Congregationalists next, with 3545; the Baptists rank third, with 2381; the Methodists rank fourth, with 2068 societies; and if the memorial to the General Assembly prevails, and our Methodist brethren settle the Epworth League question as they have settled it in Canada, by calling their societies Epworth Leagues of Christian Endeavor, then they will take the first rank in numbers, settle a vexed question, and bring glory to the cause of Christ. Christian Disciples rank fifth, with 801 societies. The glory and strength of this movement is, that, while each society is first loyal to Christ and its own church, still it is adapted to the needs of each and every denomination, and all can unite in interdenominational fellowship. This was referred to again and again by representatives of twenty or more denominations on the program.

After a song by Ira D. Sankey, "Throw out the Life-line," and reading of cablegram greetings from Australia, South Africa, and Japan, Father Endeavor Clark arose for his address amid showers of applause and waving handkerchiefs. Father Clark is always unassuming and modest, giving all the glory for the spread of the Endeavor idea to God, who directed him in its conception. His theme was, "Fidelity and Fellowship."

The two elements most prominent in the Endeavor movement have been fidelity to the local church with which each society is connected, and the broad fellowship represented in this gathering connecting the different divisions of Christ's army by common bonds. Our fidelity would become narrow and bigoted without fellowship, and our fellowship flabby and sentimental, without fidelity unswerving to the Church or God, but with fidelity and fellowship we may win the world to Christ. The watchword of the day is "combination." Rumseller is combining with rumseller; speculator with speculator; libertine with gambler, to resist good laws, to obstruct righteous legislation, and bring about a reign of terror among the hosts of God. Shall we, who represent the coming generation of Christ's warriors, play into the enemy's hands by weakening our ranks and dividing our hosts? "United we stand, divided we fall," is as true of the church to-day as it was ever true of any cause.

Bishop Vincent, who was to preach the convention sermon, was detained in Chicago on his way by an attack of bronchial trouble, from which he has suffered much of late. He told Secretary Baer in the depot that, had he been a Presbyterian or a Congregationalist, he would not have started to come; but being a Methodist, he *must* make the attempt. The vacancy thus made in the program was admirably filled by Rev. O. H. Tiffany, of Minneapolis, who followed up the theme of the president's address in stirring words from John 17:21, "That they may be one, as thou, Father, art in me and I in thee, that they also may be one in us, that the world may believe that thou hast sent me." The world complains of our denominationalism and sectarianism, and can not see the oneness of our Christianity. Christian Endeavor is helping more than any thing else to dispel this delusion. We may differ in our creeds, but we are one in Christ; and the days of church strife are largely past. He hoped to live to see the lion and the lamb lie down together, the Arminian and Calvinist walking arm in arm. Mr. Sankey related the origin of the familiar hymn, "Ninety and Nine," and then sang it as he did the first time in Glasgow, some twenty-five years ago.

Every thing was applauded as only young America in the joyous mood of Christian Endeavor knows how; but Mr. Sankey made a special request that applause be omitted after his songs; "for," said he, "who can tell but that some wanderer may be led to thoughts of seriousness that would be dispelled by such demonstrations over songs so sacred?" Endeavorers, ever loyal and obedient, were glad to obey this wish of the great singer.

Friday morning, at the 6:30 prayer-meeting, found several thousand in attendance; yet the company, compared with that vast hall, resembled a prayer-meeting in the auditorium of our churches. The second morning there were nearly double the number. If the delegates could have located nearer the building, no doubt many more would have come. The response was ready, and those who attended were uplifted and strengthened.

One of the best sessions of that best convention, and it was hard to tell what is best, it was all so good, was the free parliament Friday forenoon, conducted by Rev. J. A. Rondthaler, the "Indiana Cyclone," from Indianapolis. Topic, "What the Society has Done." In exhorting them to be brief and to the point, he says, "Leave off the introduction, cut off the closing, pull out the middle, disintegrate the remainder, and give us what you have left."

As a result we had 67 testimonies in 63 minutes, and each one repeated in the main by the leader so that all could hear.

A number of societies reported that they had sustained services in pastorless churches for periods of 6, 9, and 12 months. Nebraska reported a society in every town, city, and village in the State. Societies of Painesville, Ohio, had closed all the saloons. Societies in Cleveland had closed the Sunday theaters. Society in Peoples Church of Boston have got hold of a lot of Chinamen and brought them into the Sunday-school as permanent members. Another sends their members in squads to conduct services in mission Sunday-schools in surrounding territory. A society in St. Louis wholly supports and mans with teachers a mission Sunday-school of a thousand children. Another society appoints a number of its members each week to take part in the regular church prayer-meeting. C. E. Union of Syracuse, N. Y., have closed the Sunday saloons and stopped Sunday ball-playing.

Another society carried on the work of the church during the prolonged sickness of their pastor so well that, on the first Sunday in which he took charge, after his recovery, 106 persons were received into the church. The Christian Endeavor Society trains teachers for the Sunday-school. In one State 162 societies have brought 1026 into the church, over 100 of these from one society. Another society has a vestibule committee to welcome strangers at the church-door, and introduce them to the members after the service, making them feel at home. And no one who has not gone as a stranger to another church knows how to appreciate these words of welcome. Systematic *benevolence*, which means *well-wishing*, has been changed to systematic *beneficence*, which is *well-doing* by another society, and so the testimony rolls on.

What the society may do was clearly defined in three addresses which followed in the morning session: The Society and the Pastor, by F. O. Holman, of St. Paul. The relation of the pastor to the Christian Endeavor society is the same as to other organizations of the church. If such a thing should happen as a disagreement between pastor and society, the ultimate appeal is not to the United Society, not to F. E. Clark, not to Sec. Baer, but to the governing board of the local church, and nowhere else. The relation of pastor to society is expressed in the one word "*loyalty*." Brag of your pastor, and attend all the church services. If a noted speaker comes to town and speaks in another church, and there are services in your church, be loyal and attend your own church, and thus inspire your pastor.

"The Society and Sunday-school" was presented by the great Sunday-school man, Jas. A. Worden, of Philadelphia. Though a great Sunday-school worker he was also greatly in love with the Christian Endeavor society. He said that every member of the Sunday-school, from the primary department up, should be, heart and soul, members of the Christian Endeavor society; that 75,000 Sunday-schools of the United States and Canada are afflicted with antediluvian mossbackism, too conservative to welcome an efficient ally in their work of winning souls. He made much of the fact of our remaining young regardless of the number of years we had lived. What have we to do but grow young? "Except ye be converted, and become as little children, ye shall in no wise enter the kingdom of heaven." When we have all eternity to grow in, what business have we growing old? To keep young in spirit, we must keep in touch with the young people. If we want a sure recipe for growing old, it is, to criticise the young; look with suspicion on their efforts and find fault. He rejoiced in the Christian Endeavor movement because it is training an army for battle with anarchism and nihilism on the one hand, and Romanism on the other. He was glad because the women are included in it, because they are our most efficient workers. He said the Sunday-school was not what it seemed to be in too many of the schools, simply to grind out 52 responsive exercises and lessons during the year, but to win souls to Christ; and where will you put your young converts from the Sunday-school but in the Christian Endeavor society, to be trained in Christian service? and the school should send them into the society, surcharged with the sincere milk of the word. There are three things the Sunday-school officers are going to set out to do the coming fall, in which he asked our help:

1. Gather all the church into the Sunday-school.
2. Gather in all those who have drifted away from the Sunday-school.
3. Gather in those outside who do not now attend.

The society as a soul-winner was the general thought of the afternoon session. There were four open conferences, similar to that in the morning. "Souls won through the committees" was lead by F. J. Harwood, of Wisconsin. The Lookout Committee was called the eye; the Prayer-meeting Committee the heart, and the Social Committee the hand of the society. Make strangers so welcome that they will come again. "Souls won through the prayer and consecration meetings." The prayer must be from the heart, and the consecration real. Know the sinner, and know the way of life personally, if you would win souls. Look after the bashful and awkward boys; no hearts so susceptible to good or evil influences. In one society, consisting of one-third of Associate members, these were divided among the Active members, and personally invited to give themselves to Christ, and in less than two months there was only one Associate member left.

"Souls won through the Junior societies," led by W. W. Sleeper, Stoneham, Mass., was full of inspiration. The children's crusade in the Christian Endeavor was born for victory. The children have been too much crowded out and ignored. They eat the same food for their bodies as their elders, and can enjoy much of the same spiritual food. The Junior Societies have proved to be soul-winners. Numerous instances were given where the children were brought into the church through the Junior society. In the Junior society organized seven years ago, in Phillips Church, Boston, every one of the fifty original members has united with the church. In a society of 40 in Philadelphia, six of the parents were brought into the church; 35 additions to the church from the Junior branch of a Toronto church, and many like wonderful testimonies to the value of work among the juniors.

Passing the Local Union Conference, which was full of inspiration and suggestions, Rev. C. A. Dickenson told us of the recent campaign in England, where the Christian Endeavor cause is full of promise. Then followed a most stirring address by the evangelist, L. W. Munhall, on "The Society as a Missionary and Evangelistic Force." Would that I might bring you a coal from that fiery appeal! The necessary things are, first, consecration, not to the Y. P. S. C. E., not to the church, but to Jesus Christ. No matter if the work succeeds or fails, *your* business is to be consecrated to him. Next, systematic Bible study. "Study to show thyself approved unto God, a workman that needeth not to be ashamed, rightly dividing the word of truth." Third, personal work, using the Bible which you have rightly divided. "And remember," said he, "you will never have any influence in winning souls to Christ if you go to the prayer-meeting one night and to the theater or card-party or dance the next night. I have, in the meetings in which I have labored, seen 100,000 avow themselves Christians, and I never knew a young person who indulged in these things to be inquired of by their companions in the way of life." My Christian brother and sister, you who have named his name, and still indulge in these amusements, can you stand in the last day acquitted before God, with your comrades gone to perdition because of your careless example? Oh for consistent, consecrated lives, lived in the likeness of Christ our perfect example!

I must pass rapidly on to the close of the evening session, when Dr. Barrows, of Chicago, announced the decision of the trustees to hold the next convention in New York. This was greeted with loud applause by the delegates from the Empire State. But above the applause was heard the noise and crash of a thunder storm. Soon the electric lights flickered, and went out entirely, and there we were, 12,000 in the midst of that great building, nearly 10 o'clock, in total darkness. All is silence. Presently a voice starts in the melody,

Blest be the tie that binds
Our hearts in Christian love.

What matter if the tempest raged, and, for aught we could tell, our last hour had come? A loving Father was watching over his own, who rejoiced in his love. How our hearts were knit together, as our voices swelled in that glorious melody! Presently, after a darkness of several minutes, as it seemed, the light returned, and the exercises were resumed. I would not have missed that experience for a great deal, and I could not help thinking that, if the company were of worldly people attending a theater or a circus, or something of that sort, there might have been a panic and stampede in which many would have lost their lives.

The address Friday night on "The Revival of Generosity" was too good to pass by unnoticed. The speaker mentioned the urgent calls for men and money for the Lord's work from all parts of the world. No investment that we can make is so sure of results, so sure of an income, as investment in the gospel, not only from a spiritual standpoint, but from a business view. If we should send $5,000,000 to educate and Christianize the negroes and poor mountain whites it would, within a few years, be returned to us fivefold for wares to supply the new needs created by elevated tastes. He believed that the day is coming when shrewd business men would recognize this, and, instead of investing their money in bonds and real estate, would invest it in the gospel. There is need of such an awakening. Twelve thousand millions of this country's wealth is controlled by Christians. Of this, three cents out of every $100 is given for the support of the gospel. The Christians of U. S. give an average of 25 cents a member for the support of the gospel. The poor Chinese Christians give $1.00 per member, and the Moravians $12.00 per member. Our civil government has a claim upon us which it uses in demanding taxes for its support. So God's government has higher claims upon us which we are just as much bound to respect. If we are liberal in giving of our means for the support of his government, he will prosper us abundantly.

I must leave unsaid many of the best things.

When the delegates passed out of the hall, and when they came in, they were singing. On the crowded electric cars and on the crowded streets they sang—singing everywhere.

This is my story, this is my song,
Praising my Savior all the day long.

The climax was reached in the closing consecration meeting, in which fully 10,000 took part. Whole State delegations rose in a body, offering their consecration in a word or song, in concert. Almost every one at the meeting pledged himself to try, during the coming year, to lead one soul to Christ. How many of you, my readers, will join in the pledge?

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run and not be weary; and they shall walk, and not faint.—Isa. 40:31.

We should be glad to furnish sample copies of Gleanings for distribution at fairs. Remember, we allow you 25 per cent commission on all subscriptions you take personally.

Among the new bee-journals for 1891, the *Missouri Bee-keeper* promises to stay. It is well printed, and the editorials snap with experience and good humor. Success to you, Bro. Quigley.

The *Missouri Bee-keeper* says that thick top-bars are a great improvement; and although there were a few brace-combs—or, as we now distinguish them, burr-combs—there were not enough to justify the use of a honey-board.

Some of our agricultural exchanges, in their bee departments, are calling extracted honey "strained honey." The fact is, there is little or no strained honey on the market—at least, in any quantity. Strained honey is a very poor article in comparison with that taken by the extractor; and we hope the apiarian editors of our agricultural exchanges will see that the right word is used.

A correspondent writes: "Only a small portion of the California bee-keepers are happy this year, as the honey crop is almost an entire failure. San Diego Co.," he adds, "sends in the best report; but there is only one-fourth of a crop for other sections." While this is discouraging for California bee-keepers, it means a stiffening of prices on *eastern* honey—a fact that our producers should bear in mind as well as commission merchants.

We learn from our Spanish bee-journal, *Revista Apicola*, that Prof. Heer, of Zurich, has discovered 844 species of fossil insects which date back to the tertiary period. Among these is found a bee, well preserved, which has been added to that museum. Its size is half that of the present bee. Its tongue, wings, and abdomen are well defined, and also its composite eyes and two simple ones. Prof. Herr has named it *Apis Adamitica* (bee of Adam) and he considers it the progenitor of the present bees.

William Little, of Marissa, Ill., says that, while some 40 colonies gathered very dark and unpalatable honey-dew, he had some ten others that gathered only white honey, leaving the "nasty stuff" entirely alone. We hope our friend will tell us more about those ten colonies. Were the 40 hybrids and blacks, and the 10 pure Italians? It is a fact often observed, that Italians will gather white honey while the blacks and hybrids are busy at work on buckwheat and darker grades of honey. If we are going to be bothered with honey-dew from year to year, it might be well to single out those races that leave the "nasty stuff" alone.

It has sometimes been questioned whether there is any use of importing queens from Italy—at least for some time to come—the argument being that home-bred American Italians are just as good or even better. In our Shane yard there has been for several years nothing but the latter kind of bees. The most of them were nicely marked, and were good honey-gatherers; but, oh my! they are cross. In remarkable contrast to these are the bees from imported queens that were introduced a couple of months ago. While they are just as good and in many cases better honey-gatherers, they are very quiet. The gentlest bees we ever had were from imported stock.

Since we have begun to paraffine the candy-holes of the Benton cages, of the hundreds of queens we are sending out, the number to be replaced amounts to *practically* none. As these results began to be noticeable *immediately* after paraffining the candy-holes, it is something significant. By the way, S. W. Morrison, formerly of Oxford, Pa., now of Colorado Springs, Col., writes that he has used for many years, paraffine in the candy-holes of his cages, and that it worked well with him. As we stated editorially when we first announced the matter of paraffine for cages, the idea is old; but it is one of the *old* things that is worth reviving.

Mr. Andreu, editor of the *Revista Apicola*, a Spanish bee-journal published at Port Mahon, island of Minorca, near Spain, is anxious to know about that Minorcan queen he sent us in 1888; and he asks us, by printing in his journal, in the English language, in big plain letters, what we thought of them. Our last report in reference to them was given on page 755, 1889. Since then, the bees proved to be rather vindictive; and although they differed a good deal from the common blacks of this country, they were somewhat nervous, and unpleasant to handle. The queen was enormously prolific; but somehow this spring she turned up missing, and we have had none since. By the way, Minorcans look a great deal like the samples of Punic bees we have seen.

Sweet clover seems to be growing very profusely along the roadsides in the vicinity of Medina. We do not discover it anywhere else. It is doubtless scattered during the muddy season by the seed clinging to the wheels of wagons. By the way, some one was ungenerous enough to report that A. I. Root had been sowing the plant all over Medina. Nothing could be further from the truth. We had a little patch of it on our honey-farm years ago, but we could hardly hire it to grow. But along the roadsides, on the hardest kind of soil, where nothing else will take root, it will start spontaneously and thrive wonderfully. It can not very well be a pest to farmers, at least in this vicinity. While it looks unsightly to the average person along the roadsides, to the *bee-keeper* it looks very pretty when it is dotted with the little toilers as it usually is during the day when they can fly.

PRUNING OFF THE CORN-TASSELS FROM EVERY OTHER ROW.

WE have been practicing this until we are satisfied there is no question but that it really will do all the experiment stations claim. Two small boys go out nearly every day in our field of Shoepeg corn, right opposite the factory, with a wheelbarrow, some half-bushel market-baskets, and a couple of ten-cent pocket-knives. They cut every tassel out as soon as it makes its appearance. As the boys are small they do not work many hours a day, and the tassels cut out are worth nearly if not quite what we pay the boys for doing it. I suspect the tassels are worth a little more for horses and cattle than the other part of the corn-fodder. Now for the result: The pruned hills have developed great stocky plants, with ears that stand out, both in silk and size, in a marked degree in contrast with those in the other rows that are suffered to mature the tassels.

HOUSE-APIARIES; HOW TO MAKE THEM A SUCCESS.

THE last *Bee-keepers' Review* is an excellent number. It discusses the subject of house-apiaries. In our judgment, the best article on the subject is from the pen of James Heddon, and it covers every point. Among other good things, he says, "Never let any one advocate the use of any hives, frames, cases, or brood-chambers that are fixed within the building." You are quite correct, Mr. Heddon; and you might have added, that they prevent the bees from escaping into the room, for all outside hives are supposed to be bee-tight. One great reason why the house-apiary was abandoned was because the hives or compartments for holding the frames are fixed to the sides of the building, and it is not easy to make these so they are bee-tight. Again he adds: "The annoyance from robbers is the one great cause of irritability among the bees of an apiary; and I want to tell you that, if you have a colony that is so confounded mean that you expect to be stung even when using the smoker, put them into the house-apiary and the bees will behave perfectly." I have noticed this very thing myself; and, in fact, it is a very rare thing indeed for bees to sting inside of a building. To suddenly find themselves indoors takes all the fight out of them. In winding up, Mr. Heddon concludes: "On the whole, I think the house-apiary, when rightly made and managed, is, in many localities, a thing of comfort and profit. It is an easy thing to pack colonies in for winter; and after being packed, I can see what splendid advantages can be gained from stove heat during extremely cold weather."

WHAT KIND OF PACKAGES SHALL WE PUT EXTRACTED HONEY IN TO SHIP?

From our experience, we say emphatically, 60-lb. square cans, not kegs or barrels. Several years ago, when the square cans were first brought prominently before bee-keepers as a convenient package in which to ship extracted honey, we were continually having trouble by the barrels and kegs springing a leak; and before we knew it the bees would find it out and be set to robbing. We had so much of this that we well nigh made up our minds that we would not buy honey in kegs or barrels at all, or, if we did, we would transfer it into cans as soon as it arrived. About a year ago, inquiries were sent to the commission men to find out what kind of packages they preferred for honey, both comb and extracted. Some few favored the cans; but the majority said that, while they preferred cans for California honey (because they could not get it in any other way) they would rather have extracted honey, so far as possible, in kegs and barrels. From these reports we concluded that, may be, we were prejudiced, and have gone so far as to offer honey-kegs for sale. This year we have received five or six lots of honey in kegs and barrels, and in every instance they were leaking on arrival, while we very seldom have a case of leaking with the cans. Is this merely accidental, or are the cans really better? We certainly have good grounds for thinking so. And if we put aside this matter of leakage, are not the cans a much more convenient package for the retailer to draw from than a keg or barrel, especially if he uses the screw-top honey-gate? For storage the cans take less room; and though they can not be rolled around like kegs or barrels, yet on the whole they are convenient to handle. We are much inclined to think that the commission men or their customers prefer the barrels, for the same reason that some of us stick to old things and notions that we are used to, simply because we are used to them and dislike to try new things; and yet if they have had the same experience we have with leakage, it would seem as if they would welcome something better. Leaky kegs and barrels can usually be remedied for the time being by driving on the hoops; while if a can springs a leak a tinner has to be called in, or the can emptied to stop the leak. May be this is the explanation of it. We greatly prefer to contend with an occasional leaking can than to be continually tinkering with leaky barrels and kegs.

HANDLING HIVES INSTEAD OF FRAMES—WHO WAS THE PIONEER?

MR. HUTCHINSON copies the article from Mr. Gravenhorst, which appeared in GLEANINGS for July 15. In a footnote he is glad that the editors of GLEANINGS accord to Mr. Heddon the credit for *agitating* the question of handling hives instead of frames; but he thinks we do not give him *sufficient* credit. All right; we shall be glad to give him more if we can. Our Dowagiac friend has certainly done much toward making the idea popular; but it has been mostly in connection with his new patented hive. He has said very little in regard to handling hives instead of frames when applied to hives of other construction. Mr. Hutchinson asks, "If Mr. Heddon is not the pioneer (in the matter) who is?" We still think Mr. Heddon is not the pioneer in its advocacy or its use, and we will mention a few whom we think precede him. For instance, we will here mention our much-lamented friend M. Quinby; then following soon after, L. C. Root, Capt. J. E. Hetherington, and P. H. Elwood; Julius Hoffman, too, has long carried into practical application the scheme. Their system of manipulation enables them to perform many of the operations by handling hives in halves—in other words, splitting their hives *perpendicularly* instead of *horizontally*, *a la* Heddon. So far as the *main principle* is concerned, it is just the same whether we handle the hives in *perpendicular* or *horizontal* halves. Then, again, in early times there was Barnett Taylor, of Forestville, Minn., who says he has long practiced the plan; and then we must not forget our much-respected friend C. J. H. Gravenhorst, editor of the *Bienenzeitung*. Mr. G. has been advocating this ever since he has been a bee-editor, and how much longer we do not know. Now, even if Mr. Heddon *did* advocate the handling of hives instead of frames in early times, the references to that idea are very obscure; and we are inclined to the opinion that Mr. Hutchinson, catching on to its possibilities in later years, gave it more prominence than Mr. Heddon himself. But suppose that these men did not publish the plan, as some of them did not. Would it be right for some one else, who, *later*, conceived the idea and published it, to have the honor, and control of its use?

We can not agree with the statement, that the one who first publishes a discovery is the one who should have the honor of an invention. It belongs to the one who can prove the *first use*. That may be by printed proof, or by reliable witnesses who are still living, either one of which is recognized in the courts of law in deciding these difficult cases between inventors. Mr. Heddon may have been the first one to use the *terms* "handling hives instead of frames."

Now, please understand, Bro. H., that we are not trying to detract from Mr. Heddon's rightful glory or credit as an inventor. We recognize the fact plainly that he is a practical bee-keeper, and one of the few who are able to discriminate between the useful and the useless. He has contributed, by his practical articles, many a useful idea, many of them entirely original with himself; but just how many it would be impossible for any one to say. Remember, this world is full of ideas and inventions; and the man who can locate accurately and unerringly to whom priority belongs, would be an anomaly indeed; and therefore our position may be wrong and yours right. In these days, when so many minds are at work upon the same problems, new ideas and new inventions are necessarily born simultaneously, or so near it that no court of equity nor any editor of a bee-journal, if it be in his sphere of work, can decide to whom the credit belongs. Now, let us simmer this discussion down into this illustration: Mr. A, a quiet sort of man, has been using a bee-escape, say ten years. Mr. B, quite independently, a prominent bee-keeper, some ten years later, invents the same thing, patents it, and publishes it to the world. Is it fair or just that Mr. B should go to Mr. A and say, "Here, you have got to stop using that. *I* was the first one to publish that bee-escape. To *me* belongs the credit and royalty"? That is the way we look at this "first publishing" matter.

Blest, too, is he who can divine
Where real right doth lie,
And dares to take the side that seems
Wrong to man's blindfold eye.

THE 52D THOUSAND OF THE A B C OF BEE CULTURE.

When we finished the 42d thousand, about a year ago, we thought we had so revised it that next time we could put it in the press with but few changes; but our industry has made such progress during the last year, that, in order to bring the work clear up to 1891—in fact, almost 1892—we found we were obliged to re-write much of it, besides adding some entirely new subjects not before incorporated. Among the latter are Fixed Frames; Frames, How to Manipulate; Record-keeping of Hives; Spacing Frames; Honey-plants; Willow. The subjects that have been entirely re-written for the present edition are, Hive-making; Introducing Queens; Candy for Bees; Extractors. Those subjects which have received very large additions are, Moving Bees; Reversing; Smokers; Veils; Alighting-boards; Alsike; Apiary; Basswood; Buying Bees; Out-apiaries. There is scarcely a subject that has not received some slight revision.

A noticeable feature of the edition is the absence of the Simplicity hive, either in Hive-making or elsewhere. The comments by G. M. Doolittle are entirely revised and extended. Another feature is a large appendix. In this are put subjects that have come up since the forms where they would regularly go were printed. The new features that were added in 1890, such as the Picture Gallery and Biographical Sketches, have been retained. In short, we have endeavored to make each edition a complete epitome of the times; and while it assumes the character of an ordinary annual, it is at the same time a complete text-book. The present work contains over *400 large double-column* pages of closely compacted matter, the whole being illustrated with something over 300 engravings. This number includes some of the latest that have appeared within the past year.

DOES RENDERING WAX WITH SULPHURIC ACID RENDER THE SAME UNFIT FOR USE BY THE BEES?

Since that article from C. P. Dadant, and our footnote on page 702 was put in print, we have been making some experiments. We took about 100 lbs. of wax, rendered with sulphuric acid, and placed the same in our regular melting-vat. From this we dipped wax sheets the same as we did for making foundation. There was absolutely no odor to these sheets, and absolutely no taste after chewing pieces of them for half an hour. To go a little further and make the test sure, we went to the druggist's and got what is known to chemists as blue litmus paper. This is so sensitive that it will show the least trace of any acid or alkali in a substance. If there is a trace of acid, the blue litmus on being dipped into the solution in question will turn red. Red litmus paper will turn blue in a mixture having a slight trace of alkali. Well, we dipped some of this litmus into melted wax that had been rendered by sulphuric acid; and, quite to our astonishment, it showed absolutely no trace of sulphuric acid left; i. e., the paper showed no tendency to turn red. We repeated the experiment in a number of different ways, with the same result. We feel very sure now that wax rendered by sulphuric acid, after being made up into foundation, can have no possible bad effect. We will admit, that the cakes direct from the melting-tank of the sulphuric-acid mixture do have a very slight odor; but on remelting for making foundation, this odor seems to be all volatilized, or done away with in some shape or other.

There is another point, perhaps overlooked by our friend C. P.; and that is, that sulphuric acid has a specific gravity 2½ times that of water; and by the methods which have been described in Gleanings, after the dirt and refuse have been boiled in the sulphuric-acid mixture, the melted mixture is allowed to stand for *five* hours. The wax comes to the surface, and is dipped off. The acid, having a specific gravity 2½ times that of water, settles to the bottom, and leaves the wax entirely, or at least practically, free. This shows that there is a very slight trace or practically no acid left in the original cakes. These cakes, on being melted up again to dip into sheets for foundation, are, so far as we are able to observe, perfectly wholesome, and fit for the bees. There may be some missing links that we have overlooked. If so, our friend C. P. will straighten us out, for he is a keen observer and a bright bee-keeper; but in this we think he will admit our premises after he has tried the tests himself as above described.

FROM A. I. ROOT, JUST BEFORE GOING TO PRESS.

Well, friends, I am here in bed yet, but have much cause for thanksgiving. My blood has got down to only 98⅗—only ⅗ of a degree, as you will notice, above the great level of all the blooded universe. Bro. Newman smiled a little at my "enjoying" having the grip. Well, I take it all back. There was a point reached where even *I* couldn't find a thing enjoyable about it; and this reminds me, since I have said so much about doctoring *without* medicine, that I shall have something to say, Providence permitting, in our next issue, in regard to doctoring *with* medicine. Very likely the great Father is teaching me some needed lessons along this line.

I regret the absence of the department of gardening; but you will notice that some of it is scattered elsewhere, and probably the boys will give us a few pages extra for our next issue, for they tell me that my crops are bearing prodigiously of every thing. It is two weeks today, August 28, since I had a glimpse of them. And now good-by. From your old friend, perhaps a trifle sadder, but may be a good bit wiser.

A. I. ROOT.

OUR subscription list is now 10,545.

THE UNITED STATES HONEY-PRODUCER'S EXCHANGE.

REPORT UP TO AUGUST 15.

The white honey is now all gathered, and the average crop for the whole of the United States, according to statistical reports, is 62 per cent. which may be considered a pretty good average. In several of the States, notably Illinois, Iowa, Missouri, and Minnesota, quite an amount of dark honey has been gathered (caused by being mixed with honey-dew), and this is not included in the answer to Question 2. There are also several States where all but one or two reports say, "A full crop secured," but the others report a total failure, and, of course, this lowers the general average. The amount of honey sent to market from California will probably average as light as any of the large honey-producing States.

1. *What is the approximate number of colonies in your vicinity and locality?*
2. *What per cent of an average crop of white honey has been secured in your locality?*
3. *What per cent of this is comb?*
4. *How does this compare with last year?*
5. *What is the prospect for a crop of fall honey?*

In the last column, 1 stands for good; 2, fair; 4, poor.

STATE.	Qu. 1.	Qu. 2.	Qu. 3.	Question 4.	Q. 5.
Alabama	350	100	60	75% better.	2
Arizona	1000	55	10	About the same.	1
Arkansas	900	35	45	About the same.	4
California	2900	25	40	Not half as good.	4
Connecticut	275	50	75	Not as good.	2
Colorado	2900	60	70	Little over half.	2
Florida	750	45	15	Quite a little better.	4
Georgia	800	100	85	50% better.	1
Iowa	4500	25	50	Not as good.	2
Indiana	1364	35	60	Not as good.	2
Indian Territory					
Illinois	2750	45	50	More but poorer.	1
Kansas	1600	50	75	Much poorer.	2
Kentucky	1000	47	70	50% less.	2
Louisiana	850	95	5	50% better.	1
Maine	425	100	60	Better per colony.	1
Massachusetts	825	60	75	About the same.	1
Maryland	1200	75	85	Better crop, poorer.	2
Michigan	1500	25	50	About the same.	4
Minnesota	1450	50	50	Much better.	1
Mississippi	345	75	15	Much better.	2
Missouri	2050	20	25	Better crop, dark.	2
Nebraska	1190	42	50	Little better.	1
Nevada	600	25	15	Much worse.	4
New Hampshire	700	100	95	50% better.	2
New Jersey	400	100	90	Much better.	1
New York	12900	75	80	50% better.	1
North Carolina	250	25	90	About the same.	1
Ohio	1650	60	80	Much better.	2
Pennsylvania	1800	63	90	Much better.	2
Rhode Island	380	42	50	Not as good.	4
South Carolina	800	100	40	50% better.	1
Tennessee	700	125	50	75% better.	1
Texas	750	65	20	Much better.	1
Vermont	3345	100	95	60% better.	2
Virginia	1700	55	75	Some better.	2
West Virginia	1850	75	80	More honey,	1
Washington	440	40	50	Not as good.	2
Wisconsin	5900	75	50	50% better.	2

P. H. ELWOOD, PRES.

G. H. KNICKERBOCKER, SEC.

SPECIAL NOTICES.

MELILOT, OR SWEET CLOVER WANTED.

Send samples, stating how much you have, and what you will take for it.

CLOVER EXTRACTED HONEY.

We have received a good many samples of honey, with offers; but the most of it seems to be basswood, and off grades. We should be pleased to receive samples of choice clover extracted, with offers.

CHOICE WHITE SECTIONS CHEAP.

We have more than twice our usual year's supply of the choicest white basswood section lumber, which we are working up into sections that can not be excelled in quality and workmanship. Dealers and others who buy in considerable quantities will do well to get our prices before placing their contract for next year's supply, as we are prepared at this time of year to make special prices.

MAPLE SUGAR AND SYRUP.

As the warm weather is pretty well over, perhaps some of our readers will now be interested in maple sugar and syrup. We have a good supply, to ship promptly at the following prices: Maple syrup in 1-gallon cans will be worth $1.10 per gallon, or $10.00 for 10 gallons. Of sugar we can furnish three grades at 10, 9, and 8c per lb. for small lots; 50-lb. lots, ½c less; or barrel lots of about 300 lbs., 1c per lb. less. Special price on large lots quoted on request.

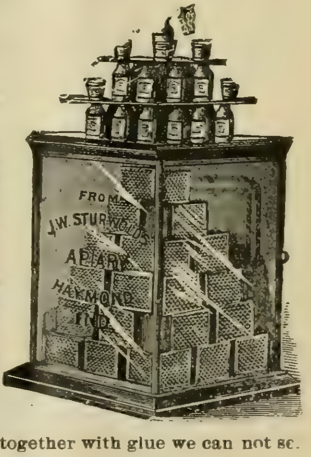
NEW EDITION A B C OF BEE CULTURE.

As advised on another page we are now mailing the new revision of our popular text-book, the A B C of Bee-Culture. Those who have any of the older editions should also have this latest one. If you can not afford to keep both, sell the old one to a neighbor bee-keeper at a reduced price, and we will furnish you the new one at $1.00, postpaid. Remember, this price is only to those who have already had one, and so mention in their order, or to any one who orders with GLEANINGS one year, sending $2.00 for both. The price is $1.25 postpaid to all others; and, please remember, dealers and others, that *we do not furnish it in paper covers*. We gave notice nearly two years ago that we would discontinue making them, and yet many still order them. We have to send the cloth and charge the difference.

STURWOLD'S

SHOW-CASE

For Retailing Honey.



This case is 2½ feet high and 20 in. square, outside measure, top and bottom. The glass of which it is made is 16x26. The case is to be set up in any grocery, drug-store, or any other place of business where you wish your honey exhibited or sold. These show-cases are shipped from here. Price $4.00. With your name and address, $4.50. As the glass is very apt to be broken in transit we will ship them with the glass boxed separately at same price, if you prefer. As the cases are put together with glue we can not se. them in the flat.

A. I. ROOT, Medina, O.

Five-Banded Italians

Are the handsomest and gentlest bees I have ever seen, are good workers, and are not inclined to rob. My breeding queen, together with her bees, took **First Premium** at the Detroit exposition last fall. I can furnish untested queens for $1.00 each, or 6 for $5.00; tested queens, $2.00 each; select tested, $3.00 each. Safe arrival guaranteed. Make money orders payable at Flint, Mich. 17tfdb

ELMER HUTCHINSON,
ROGERSVILLE, GENESEE CO., MICH.

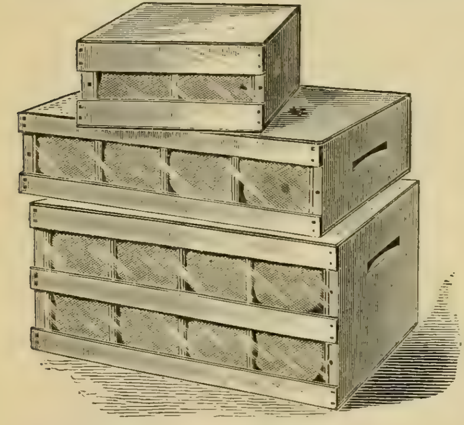
☞In responding to this advertisement mention GLEANINGS.

On Their Own Merits.

My **5-Banded Golden Italians** will give satisfaction. Try them. Warranted queens, $1. 3 for $2.50. Tested queens, $1.50. Circular free. 17-19d

CHARLES D. DUVALL,
Spencerville, Montg'y Co., Md.

Shipping - Cases.



Above we show our three staple sizes of cases for packing 1-lb. sections for market. The trade as a rule much prefer the two smaller sizes, the 12 and 24 lb. single tier, but there are some who still cling to the 48-lb. double-tier case, so we still furnish them. We also make the 24 lb. double-tier cases for those who want them, at the same price as the single-tier case. We make odd sizes to order; prices quoted on application.

PRICE LIST OF SHIPPING-CASES.

	Nailed, with glass, each.	In flat 1	10	100
48-lb. double-tier shipping-case......	$ 35	$ 20	$1.80	$16.00
24-lb. single-tier "	25	16	1.40	12 00
12-lb. " "	15	10	80	6.00

No glass is included with cases in flat.

We make above cases to take glass on both sides or only one side as ordered.

If order does not specify we send cases to take glass one side only.

Above cases are all for sections 4¼x4¼x1⅞.

For other widths of the 4¼ section in lots of 10 or more, same price if specified in the order.

Cases for 4½-inch sections, or for the 4¼-inch with cartons on them, 1 cent each extra, in lots of 10 or more.

For price of cases for other sized sections write us.

GLASS FOR SHIPPING-CASES.

Size of glass.		Prices. Per sheet	For 10 sheets	Per box of 50 ft.	No. of sheets in box
3 x 17½ in. and	24 lb single-tier case. . 48-lb. double-tier cases.	3c	25c	2 50	133
2 x 17½ "	combined crate	2c	20c	2 50	200
2 x 9 "	12-lb. cases...............	1c	10c	2 50	400

A. I. ROOT, MEDINA, O.

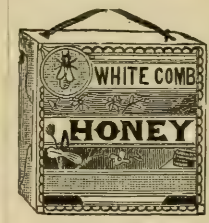
VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

Please mention this paper.

PASTEBOARD BOXES, OR CARTONS.



Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain........................	2	.20	.60	2.75	5.00
1-lb. carton, printed one side, one color, name and address............			.90	3.50	6.00
1-lb. carton, printed two or three colors, one side			1.00	3.75	6.50
1 lb. carton, printed one color on both sides, name and address..........			1.00	3.75	6.50
1-lb. carton, printed two or three colors, both sides.........			1.10	4.00	7.00

We can no longer furnish the lithograph labels, and printing on the box in two or three colors is cheaper and more tasty.

If sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 75c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, Medina, O.

Price List of Jones Lithograph Labels.

10 per cent reduction for 60 days from the following:

Name of Label.	Size in Inches.	Price, 100	1000	Postage 100	1000	Print'g Add's 1000	500	250	100
5-lb. Jones Lithogr'h.	6¾ x 14	1 00	9.50	.12	1 20	1.00	75	50	30
2½ ditto.	3½ x 14	.60	5.50	.6	52	1.00	75	50	30
1 ditto light.	4⅛ x 9½	.50	4.00	.4	.35	1 00	75	50	30
1 ditto darker.	4⅛ x 9½	.50	4.00	.4	.35	1.00	75	50	30
½ ditto.	2⅛ x 8¾	.25	2.00	.3	.28	.90	75	50	30
¼ ditto.	2 x 7½	.25	2 00	.3	.25	.90	75	50	30
⅛ ditto.	1½ x 5½	.15	1.00	.2	.18	.90	75	50	30
E ditto.	2⅛ x 16	.50	4 50	.4	.36				
F ditto.	2⅛ x 16	.50	4.50	.4	36				
G ditto.	2¾ x 13½	55	5 00	.5	.42	1.00	75	50	30
H ditto.	2¾ x 13½	55	5.00	.5	.42				
I ditto.	3½ x 14	.60	5.50	6	.52	1.00	75	50	30
J ditto.	2¾ x 16	.60	5.50	.6	.52				
Abbott Oval Lith'ph.	2⅜ x 2⅝	.30	2.00						

In order to work down our stock of these labels we offer a reduction of 10 per cent from above prices for the next 60 days.

Those of you who have never seen these labels can form little idea how handsome they are; and that you may see them without much expense we will put up a sample package of 1 of each kind, with one dozen of the last named, and mail postpaid for *ten cents*. Eight of the above may be divided into 2 and 3 labels each, so that you can get a small lot (over 30) of handsome lithograph labels, no two alike, for only 10 cts. These sample packages would be very good for labeling a small fair exhibit. They would at least add variety. We can not, of course, print your name and address on the sample package or any number less than 100, and those opposite, which we give no price for printing, have no blank place for such printing, and hence can not be printed. All the above are ungummed. You can not get lithograph or many colored labels on gummed paper.

ABBOTT LITHOGRAPH LABELS REDUCED.

Having a very large stock of the oval 12-color lithograph labels which we desire to move off at this time, we offer them, for the next 60 days, at the following reduced prices, postpaid: 25 cents per 100; 500 for $1.00; 1000 for $1.75.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

New York.—*Honey.*—Comb honey is beginning to come in very freely now, and the demand is also increasing. Fancy 1-lb. section, 16@17; nice 1-lb. sections, 14@15; fair, 13@13½; fancy 2-lb. sections, 14; fair 2-lb. sections, 13; buckwheat, 1-lb., 11; 2-lb., 10. Extracted honey, little demand, 7@7½.

Beeswax, limited demand, 25@27.

Sept. 10. **Chas. Israel & Bros.**,
110 Hudson St., New York.

Cincinnati.—*Honey.*—There is no change since our last. Honey of all kinds keeps coming in slowly but steadily. There is a fair demand for all but honey-dew honey, of which there is an unusually large amount. Comb honey brings 14@16 in the jobbing way, for best white; extracted honey 5@8 on arrival.

Beeswax.—Demand is fair, at 23@25 on arrival, for good to choice yellow. **Chas. F. Muth & Son**,
Sept. 10. Cincinnati, O.

New York.—*Honey.*—Comb honey arriving now, but demand very light yet. We quote: Fancy white, 1-lb., 16; 2-lb., 14; fair white, 1-lb., 13@14; 2-lb., 12. Extracted, supply large, and demand still limited. California, 7¼; Florida and basswood, 7@7½; common Southern, 65@70. *Beeswax*, stagnant; good Southern, 25@26. **F. G. Strohmeyer & Co.**,
Sept. 12. 122 Water St., New York.

Kansas City.—*Honey.*—The demand is good with light supply, the new crop arriving; but about half dark, mixed with honey-dew, the other half fair quality. One-pound comb white, 16@17 cents; dark, 1-lb., 12; 2-lb., white, 15; dark, 10@11; extracted, white, 7@7½; dark, 5@6. *Beeswax*, 25@26.
Sept. 9. **Hamblin & Bearss**,
514 Walnut St., Kansas City, Mo.

Albany.—*Honey.*—Prices quoted in last issue not maintained, and we dare not quote above 15 for fancy white clover in pound sections. No. 2 clover, 12@13. Buckwheat, 10@12. 1½-lb. sections sell at about 1 cent a pound less. Extracted, very dull and but very little demand yet.
Chas. McCulloch & Co.,
Aug. 22. 393, 395, 397 Broadway, Albany, N. Y.

New York.—*Honey.*—Comb honey arriving very freely, and sells at following prices:
1-lb. sections, fancy, 15@16; same, fair, 13@14; 2-lbs., fancy, 13@14; same, fair, 12. No buckwheat comb in market yet. Extracted, supply good, demand limited. We quote: California, 7; basswood, 7; orange bloom, 7@7½. Southern, common, 65c per gal., choice 70. **Hildreth Bros. & Segelken**,
28 & 30 West Broadway, New York.

Philadelphia.—*Honey.*—We think that the Philadelphia market will be the best for honey this year. As we shall be the largest dealers here, we can quote reliable figures. We quote: Fancy white, 16@18; and sometimes as high as 20, as to style of package. No. 2 white, 14@16. **E. J. Walker**,
Sept. 10. 31 South Water St., Philadelphia, Pa.

Chicago.—*Honey.*—Market quiet; choice sells at 15@16. Not much of it coming. Nearly all more or less strained, or out of condition. Dark, dull at 13; extracted, 6@7@8, according to quality. Now is a good time to forward comb honey. *Beeswax*, 27.
Sept. 9. **R. A. Burnett**,
Chicago, Ill.

Kansas City.—*Honey.*—The demand for 1-lb comb is fair; recipts light; demand for extracted larger than the receipts. 1-lb. comb, white, 15@16; 1-lb. comb, dark, 10@12; extracted, white, 7@7½; extracted, dark, 5@6. *Beeswax*, 23@25.
Sept. 10. **Clemons, Mason & Co.**,
Kansas City, Mo.

St. Louis.—*Honey.*—The trade is honey rather inactive. Until colder weather we don't look for much demand. However, we are, as usual, disposing of considerable, our last sale being 15,000 pounds. We quote: Comb, 10@12; extracted, 4¾@5½. Basswood, 26. **D. G. Tutt Gro. Co.**,
Sept. 9. St. Louis, Mo.

Detroit.—*Honey.*—Comb honey, 11@12½, with good supply. Extracted, 7@8.
Beeswax, 25@26. **M. H. Hunt**,
Sept. 9. Bell Branch, Mich.

St. Louis.—*Honey.*—Choice white clover, comb, 13@14; fancy, 15; fair, 12. Extracted, small cans, 7@8; large 6¼@6½; barrels, 5½; southern, in barrels, 5@5¼. *Beeswax*, choice, 24½; fair, 24.
W. B. Westcott & Co.,
Sept. 9. St. Louis, Mo.

For Sale.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. Stordock, Durand, Winnebago Co., Ill.

For Sale.—1000 lbs. of white clover and basswood honey, in 60-lb. cans. How much am I offered for it on board cars here? **Thomas Gedye**,
Grand Ridge, La Salle Co., Ill.

For Sale.—Extracted honey, in 14-gal. kegs; 7¼ cts. **M. Isbell**, Norwich, Chen. Co., N. Y.

For Sale.—7 barrels of dark extracted honey. Will run near 500 lbs. to barrel. Make us offers on lot, or any amount wanted.
J. A. Thornton, Lima, Ill.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address **E. Lovett**,
11tfdb San Diego, Cal.

Honey, Beeswax, Etc.

We are now in position to receive honey and beeswax on consignments, and to obtain best market prices for comb and extracted honey. Last year we could have disposed of as much again honey as we received, and our outlet this year will be still better. Correspondence solicited.

CHAS. ISRAEL & BRO.,
110 HUDSON ST., N. Y.

Dealers and Commission Merchants in Honey, Beeswax, Maple Syrup, Sugar, etc. 16tfdb
Please mention this paper.

Basswood HONEY,

EXTRA QUALITY.

USUAL LOW PRICES.

ADDRESS

JAMES HEDDON,

18-19d ***DOWAGIAC, MICH.***
Please mention this paper.

50 TESTED QUEENS, 75 Cts.

Young Italians guaranteed in every particular. Sample 5-banded bees, 2c.
F. C. MORROW, Wallaceburg, Ark.
Please mention this paper.

CYCLONE HONEY - CASES.

IT IS "AN ILL WIND THAT BLOWS NOBODY ANY GOOD."

That terrific cyclone that swept through this place, leaving a path of ruins in its wake, demolished some valuable timber. I have had some of this worked up into shipping-cases for honey, for the benefit of my bee-keeping friends. I can afford them cheap. Write me if you wish to know more of these cyclone relics. **H. R. BOARDMAN**,
East Townsend, Huron Co., Ohio.
Please mention this paper.

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Genuine Kid. Soft Soles, Elegant Style; Broad or Narrow Toe. Sizes, 2 to 8. C, D, E, and E E widths. This Shoe is sold at $3 in all retail stores.

OUR PRICE $2, POSTPAID.

FIT, STYLE, AND WEAR GUARANTEED.

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Send P. O. order, Registered Letter or Postal Note.

C. L. GRIESINGER, MEDINA, OHIO.

Reference, GLEANINGS. 18-19-2-21d

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SPECIAL NOTICE.

50 colonies of Italian bees for sale. They are in first-class condition; hives chock full of bees and honey. Also a fine lot of choice queens for sale. Not going out of business, but shall continue as ever to fill orders for any thing in our line of trade. For full particulars address 17-18d.

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Please mention this paper.

BY RETURN MAIL, 400

Golden Italian Queens. Tested, $1 00 each; untested, 70c, 3 for $1.80. HIVES, SECTIONS, FOUNDATION, and all BEE-KEEPERS SUPPLIES kept in stock. Catalog free. JOHN NEBEL & SON, High Hill, Mo.

Please mention this paper.

DON'T you want to improve your stock? Don't you want nice large business Italians that will just "*roll in the honey*"? Seven years careful breeding from the best stock obtainable; 650 queens sold, and never heard of but one mismated. Queens large, yellow, and prolific. Warranted, 75c; 3 for $2.00; or a select breeder, $1.50. Your orders appreciated. Return mail. 16tfdb.

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N. A. KNAPP, Rochester, Lorain Co., O.,

HAS FOR SALE

50 STRONG COLONIES OF PURE ITALIAN BEES,
500 WHITE AND BLACK FERRETS.

Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

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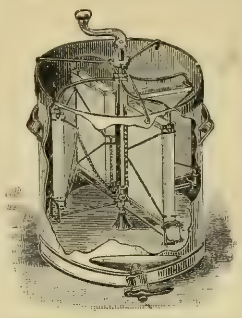

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USED BY
BEE - KEEPERS.
EDWARD R. NEWCOMB.
Pleasant Valley, N. Y

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WE WILL BUY YOUR OLD COMBS.

F. A. SALISBURY, SYRACUSE, N. Y.

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A 6-HORSE-POWER ENGINE AND BOILER

For sale at a bargain, or will trade for comb honey. 17tfdb Address J. A. ROE, Union City, Ind.

Bee-Keepers' ❁ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

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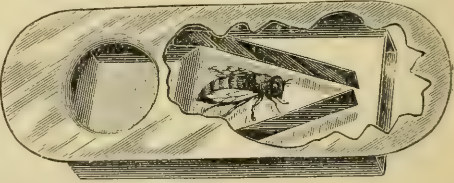
Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



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A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue.** 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

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PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
—Dr. G. L. Tink

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

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GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year Medina Ohio

Vol. XIX. SEPTEMBER 15, 1891. No. 18.

STRAY STRAWS

FROM DR. C. C. MILLER.

Are you going to Albany?

Departed this life—the *Bee World.*

The blood of a bee is not red, but colorless.

Carniolans make worker cells of larger size than those made by black bees.

Editor Newman has been laboring with one of his correspondents to make him believe a colony is a colony and not a swarm.

How I wish I knew all about bees! But if there were no more hard nuts to crack, bee-keeping would lose some of its brightest charms.

Honey-dew honey should not be sold as good honey, if sold at all. Can't you feed it next spring, and get it all used in brood-rearing?

An Automatic Smoker has been invented by the French apiculturist, M. de Layens, which is said to give good satisfaction. Costs 14 francs.

Extracting sections that are partly filled is a fussy sort of job. Is it not better to feed to the bees, and then extract, if necessary, from the brood-combs?

Beeswax rendered with sulphuric acid has "absolutely no odor." Then I shouldn't like it so well. I do like the odor of good foundation, and it's possible the bees do.

I am with friend Larrabee in his opposition to slits for comb-guides in top and end bars. Should the many who don't use them be obliged to suffer then, in order to accommodate the few who do use them?

J. H. Larrabee asks if I'm afraid of ⅝ top-bars sagging. Somewhat; but I find more burr-combs over top-bars ⅝ thick than over ⅞. So I'm doubtful about ⅝ preventing burr-combs.

Of Punic bees, Gleanings says: "It is admitted that they are bad propolizers." "A Hallamshire bee-keeper" (the introducer) says in the *Journal of Horticulture* that they are not *bad*, but *good* propolizers, for they fill cracks or chinks with an enormous quantity of propolis, but do not put it on their combs.

Another cure for laying workers. From F. H. & E. H. Dewey, in *American Bee-Keeper.* Put the infected colony in a ventilated box without combs for 4 or 5 hours, in the shade or in the cellar; then drop in a caged queen, preferably a laying one, and in about two hours more pour the bees before a hive devoid of all brood, releasing the queen to run in with the bees.

Gleanings says that sheets made of wax rendered with sulphuric acid have "absolutely no taste after chewing pieces of them for half an hour." I should think not. Almost any thing would have all the taste chewed out of it before the half-hour was up.

A. I. Root, in a private talk, once raised the question of using excluder zinc between the top-bars. Now that thick top-bars seem to be taking the place of honey-boards, and yet queen-excluders are used for extracted honey, might it not be a good plan to combine in some way top-bars and excluders?

Your Wife doesn't like to let you have beeswax in her pans and kettles. It's a big job for her to clean them up. Well, clean them up yourself. Set them over the fire till the wax melts; then, without any water or any thing else, wipe out all the wax with old newspapers, perhaps finishing up with dry rags.

Eli Shepperd, in *Home and Farm*, says melilot is highly valued in Hale county, Ala., as a fertilizer, bringing "youth and renewed freshness to the most worn piece of lime land." "It makes a nourishing and finely perfumed hay. When fed to cows it imparts to the products of the dairy a delicate and pleasant flavor."

The editor of the *American Bee-Keeper* says: "We believe it is generally understood that Italian bees do not work to any extent in buckwheat, while common bees and hybrids usually get a good harvest from it." Is this correct? I had supposed that Italians would work as well as blacks on buckwheat, if nothing better was to be had.

Allen Pringle, in *C. B. J.*, is down on the doctors, and quotes quite an imposing array of doctors themselves, eminent ones too, to prove that the world would be better off without doctors or drugs. Very likely; but if friend Pringle gets really sick, see if he doesn't send for the doctor. It's born in people to want to be doped and dosed.

Introducing Queens. Here's a plan given by H. Spuhler, in *Revue Internationale.* Several hours after the removal of the old queen, put the new one in a little cylinder made of foundation. It is closed at both ends, and furnished with little holes pierced with a needle. After daubing it with honey, put it in the middle of the brood-nest. The bees do the rest.

Friend Jones, of the *C. B. J.*, thinks if a young queen be slyly dropped into the top of a hive about dark she would supersede the old queen. I tried superseding quite a number last year by having a young queen hatch out in a cell-protector. They hatch out all right, and would be found peacefully traversing the combs; but before it was time for them to lay, every last one disappeared. If I had removed the old queen, I have no doubt all would have been lovely.

The Peach Tomato, sent out by the Agricultural Department at Washington, has a decided individuality. It doesn't look shiny, like other tomatoes, doesn't feel smooth, has the shape and size of a not very large peach, and might easily be mistaken for one at a little distance. It seems ripe inside before fully colored, and drops from the stem when quite ripe. It didn't rot on my ground, while Ignotum and Mikado did.

ARE WE DRIFTING FROM OUR MOORINGS?

A WARNING NOTE FROM DOOLITTLE.

I have read with interest what has been said during the present summer about hives and their manipulation, as against the manipulation of frames, as has been the custom of the past; and, unless I am greatly mistaken, there is *not* in this idea all the pecuniary benefit to the bee-keeper that a superficial view of the matter would lead him to expect. The idea embodies, in all of its bearings, unless I am blind in this matter, two things which will be an expensive luxury to the one who adopts this idea of "handling hives instead of frames;" and these two things are, first, a radical change in most of the hives now in use; and, second, the placing of a greater number of colonies in the field, both of which are against us; the latter for all time, and the former for the near future. This changing of hives and fixtures, to the extent to which it has been carried in the past, has been somewhat against us, and the outlook for the future shows no sign of improvement. The changing of hives and fixtures in an apiary that numbers fifty means quite an expense—an expense that will take many *good* years of production to pay it, over and above what might have been secured with the old fixtures, even should the new prove better than the old. Not long ago a "new" hive came out, the claim for which was that it was going to cheapen honey production; for surely the producer must produce his crop at a less expense than he was now doing if he was to be enabled to keep his head above water, in these times of low prices. Have we seen these great things accomplished? Let friend Gravenhorst answer: "I found out something by this new method that did not satisfy me in contrast with the old one. In the course of several years I always got more honey and wax in the old-fashioned way." While friend G. was not speaking of this particular hive as "the new method," yet he but voices what many another has found out. To illustrate more fully just what I mean I will let the reader into a little bit of my past history, together with that of another whose name I will not mention. When I first began keeping bees it was with the express understanding that, after the first outlay ($35.00) on them, not another cent should be paid out unless they brought it in, and that I would not pay out for new fixtures a cent of what they brought in unless I could see that some pecuniary benefit was coming back in the near future to more than balance what I would pay out, and that I would use up, as far as might be, all of the old, without throwing away that which had cost me a cash outlay. This understanding has been carried out all of these years; and to-day, instead of having only $500 as my worldly possessions, as I had in that spring of 1869, and living in a tenant house, with my small apiary on somebody's possessions besides my own, I have a comfortable home, consisting of 30 acres of land and the necessary buildings; have enough laid aside to carry me and mine through life, unless something extraordinary should happen to us, besides being enabled of later years to do something to advance the Master's interests in the world, and that which tends to uplift humanity; all having come from the bees over and above what I have paid out for them, and I still use the same old Gallup hive with which I started, and see no reason for wanting or desiring a change.

In 1869, the "another" spoken of above, counted his worldly possessions far above mine, produced much more honey each year than I did, as a rule obtained better prices, but laid out each year all or more than what the bees produced in "something new," throwing away that of the past which did not suit, and purchasing new again, till a short time ago found him borrowing money that he might still purchase something new in the "bee line," while there were wagonloads of stuff, representing thousands of dollars, to be found strewn about the premises, that had accumulated by this great desire to keep "abreast of the times" and "secure the greatest amount of income with the least capital and labor."

Did any one who reads this ever say to the "good wife," "Can't you wear the old bonnet another year, or get along without that new dress we talked about, so that I can get *that* new hive, or *that* foundation-mill, or some other thing about bee culture, that I may succeed better in my pursuit"? And hasn't the baby gone with holes in the toes of its shoes, the children gone with ragged and patched clothes, the wife set up long after the rest were abed, to patch these clothes, and the whole family suffered, that a change for the better (?) might be made in the bee-business, when, as friend G. says, the old in the end would give the best results?

Now, don't understand me as "butting" against improvements, for no one rejoices more over real improvements than I do; but if I am to rejoice, the thing offered must be an improvement when viewed from all of its many sides. Talk about handling hives instead of frames! The old hive, as given us by father Langstroth, with a movable bottom-board and no portico, can be handled just as you please after the bees have been in it (on this plan) one year; and yet how many of the bee-papers of to-day are recommending it as *the hive?* To be of real value, unless a radical change is necessary it is better to tell us how to secure the same results with what we now have, rather than advise something new to secure these same results. The "stone that keeps rolling gathers no moss." I may have been too severe in this, but I have felt for some time that we should call a halt, so I have written what I have. G. M. Doolittle.

Borodino, N. Y.

Concluded in next issue.

[I am glad, friend D., that you have taken up the other side of the question; and whether or not we are "drifting from our moorings" your caution will not come amiss, especially to that class of bee-keepers who are over-enthusiastic. It were better, far better, that they stick to the old-fashioned things that have done good service than to waste their profits on new things. But, why go to either extreme? Is there not a golden mean somewhere here? You have done well with the fixtures you adopted in 1869; but this does not argue that you would not have done *better* with something else. Father Quinby made bees pay, and pay *well*, with only *box hives;* but because he did so, would it have been better if *we* had never adopted the Langstroth movable frame? Nay, verily. Father Quinby, yourself, and the rest promptly fell in with the new idea, because the new system offered advantages.

I will say right here, by way of parenthesis, for the benefit of our readers' private ear (not for Doolittle's), that our Borodino bee-keeper is systematic and careful, and, withal, a good financier; and I am quite sure he would have made almost any system—yes, almost any business—pay. Well, now, we are tending toward fixed frames as against the excellent loose frame given us by Langstroth. We, who are advocates of the former, hold that they save labor, and, to a greater or lesser extent, permit of handling hives more and frames less. In order to secure this latter feature, we who are of this school do not *all* advocate a radical change of hives. The Hoffman frames do not require the change of a single hive of the Langstroth type; and the change of frames should be made gradually. In most apiaries, new frames are by degrees added, and old ones are being replaced and the combs melted up. Why not, then, work in gradually the new frames—that is, if a test of a few justifies their further introduction? To get the principle of handling hives instead of frames, or, as I prefer it, "handling hives *more* and frames *less*," it is not necessary to work a revolution in hives. Even with the old loose frames it is possible to handle hives more and frames less than is usually practiced. I venture to say, you do not handle your frames now to the extent you did in 1869. But with the Hoffman frames the possibilities in this line are much greater. Try it and see. The very quotation you make from Gravenhorst was by him intended to prove the advantage of handling *hives* and not *frames*, as you seem to take it—at least, I so understand it. In another column I tell what I mean by handling frames less. I am now glad to give something that upholds points made by both of us.] E. R.

FIXED DISTANCES AND FIXED FRAMES.

HANDLING HIVES INSTEAD OF FRAMES.

I commenced bee-keeping in 1848, and followed it in just about the average way until 1861, when I was "born again" into apiarial life. I bought "Langstroth on the Honey-bee," and commenced work in real earnest; but I found that there was no way of spacing frames the proper distance apart except by the mere chance of guessing; and not being cast in the "good luck guess it good chance" mold, I began to experiment to find a better way; and, as a result, I invented the frame that I exhibited at the Keokuk convention, in the hive I gave Mrs. L. Harrison, and, so far as I know, I was the first person that ever made and used such frames. They had all the advantage of lateral movement, but can be quickly adjusted in fixed places, and are as easily moved and handled as your metal-cornered frames. They are cheap; take of necessity a thick top-bar; and hives made upon this plan, when properly constructed, have given universal satisfaction to all who have tried them for the last 30 years, and I have made, sold, and used thousands of them in this section of country. I tried to interest others in them, the senior editor among the number; but he said, "The bee-keeping brethren have decided that any kind of fixed distances is no good, and they are laid away to stay."

But eight or ten years ago the bee-keeping air grew hot with reversible frames, fixed frames, fixed distances, reversible hives, interchangeable hives, storifying hives, double-brood-chamber hives (the last of which, by the way, I had been using for 25 years or more), continuous-passageway hives, non-swarming hives; and so on without end, the bee-journals giving them all prominent notice; and I concluded that I knew nothing about good fixtures; that I was badly behind the times, and, to have any chance of winning the apiarian race, I must throw aside my old-fashioned scrub fixtures and cultivate the new traps. Now, I well knew that the use of a hive or two of any system gave the experimenter no chance of arriving at just conclusions; and having all the facilities for experimenting cheaply, first-class machinery, coupled with proper mechanical skill, I resolved to try things on a scale that would enable me to know what was what. Well, the first thing I did was to make 50 hives on the Heddon or closed-end-frame principle. When I had them completed I would handle the frames by the hour, and would think, "Well, this is just splendid;" and when swarming time came I filled the 50 hives with good early swarms, and obtained as good a yield of honey from them as from my old style of frames; and as I handled the frames but little that summer, all went well, and I made 50 more hives the following winter on the same plan. The next spring, on setting my bees out I found it necessary to examine the combs, as some swarms were dead, some queenless, some weak in bees; and I went to work joyfully to handle the frames that were "easier to manipulate, and would kill far less bees, than the hanging frame." But the winter dampness had swelled the dry wood in frame and hive, and they came like pulling teeth; but, however, I got them out, and things arranged, but not without some curious thoughts creeping through my mind. After a time the bees increased in numbers, and the hives became overflowing with bees, just as they had to, to become profitable in gathering a large yield of white honey; and here again I found it necessary, in carrying out my plans, to open the hives and handle the frames. They had become dry by this time; and, while coming out easier than at the first trial, they stuck far tighter than I expected. But every inch of space was now crowded with bees; and when I tried to return a frame among that mass of bees, with all I could do with smoke and skill, what a crushing of bones! I filled the 50 new hives with bees that summer, with fair success as to honey; used them all the following season, and then the combs were all transferred to hanging frames, and I am entirely satisfied with the change.

I will say, before leaving this style of frame, that the hives in all their parts were constructed in the very best mechanical fashion. I had been using a half-closed-end frame, like the Hoffman, in my little shallow double-brood-chamber hives for years before I ever heard of Mr. Hoffman or his hive. They were only 4½ inches deep, and I seldom needed to handle single frames. They worked without just cause for complaint. But I was establishing out-apiaries, and what a splendid thing full-brood-chamber hives with the now famous Hoffman frame would be for hauling around! The engine was started, and some 500 hives, with the aforesaid frame, was immediately constructed in first-class fashion; and after they were all done I spent hours in handling the empty hives on my work-bench, and I said, "Well, this is just splendid." Each station was supplied with these new hives, and all swarms hived in them; but pretty soon Mr. D. W. Whitmore, who was very successfully managing one of the out-stations, said, "I do not like to handle the new frame as well as the old wire-end kind. They take twice the time, and kill three times more bees." Mr. Whitmore's partnership with me has now terminated very satisfactorily by its limit of time expiring, and he is managing his own bees now. He recently said to me, "I want 50 hives in the flat, made for me on the old pattern of wire-end frames—that is the hive for me. I want no more Hoffman frames. They are a humbug compared with the old frame."

I used some 50 of these hives in the home yard. I do not say they are a very bad hive. They, like the entire closed-end frames, are nice to handle when the hives are empty, or contain but few bees, and are not swelled by dampness. I transferred all of my own this season to suspended frames, and am well satisfied with the change; and during this time I took the reversible-frame fever, and constructed 40 hives with a reversible frame constructed on the principle of my old wire-end frames. I filled them with bees, and they worked with entire satisfaction. The combs looked extremely nice, filling the frames tightly, top, bottom, and sides. But I soon found I could obtain no more surplus with them after a great deal of extra fussing and work; and after 2 years' use I drew the wire nails from one of their sides, and used them as I did my old-fashioned fixed frames; and I must say, before I quit, that I am now convinced that I do not want the combs fastened to the bottom-bars. The reason, I will not try to give here.

I tried several other styles of fixed frames on a smaller scale during this time, but have rejected them all.

Now, friend Root, I will send you, in connection with this report, a sample of an improved rabbet that I invented and now use in connection with common suspended frames. I do not ask for your opinion of it. I ask you to just let your boss workman take it and make one of your Dovetailed hives with that kind of rabbet; and after the frames are in you give it a good examination, and then set the frames, bees and all, from some good colony into it, and then give your opinion. I am pretty sure you will decide, after you have added my method of keeping just a bee-space on all sides of the hives on a plain bottom-board, and always keeping a proper bee-space between two or more hives tiered up for extracting or other use, that the Dovetailed hive is equal to any thing ever constructed for a full-brood-chamber hive, and, excepting the double-brood-chamber hive, I will say that I believe it will be the best hive in use for all purposes.

Now, I suppose the readers of this article would seem to be justified in saying that the man who had gone to all this expensive trouble, only to go back to old ways, is too old to appreciate new things, and deserves no consideration. But, friends, if you think I am not thoroughly alive to new ways and new things, just visit my apiary; and if you do not change your mind I will pay your expenses. In bee-keeping it may be truly said, "Old things have passed away, and, behold, all things have become new."

Before closing this article I wish to say to the honest, enthusiastic advocates of closed-end, Hoffman, and other fixed frames, that I regretted to write this on their account. But I did it believing what I have said to be true, and that it would do the general bee-keeping world much good. In the future even my little double hives will be made with the new rabbet and plain suspended frames. B. Taylor.

Forestville, Minn., Aug. 16.

[I will explain to our readers, that Mr. B. Taylor is the one who has used shallow brood-chambers for some 20 years, though I believe on a different plan from that advocated by Mr. Heddon. He is a fine mechanic; and I should judge, from what I saw of him at the Keokuk convention, that he is somewhat given to experimenting, and testing all the new "fads." He has indeed been through the "mill" on fixed distances; and it seems after all that he is still in favor of them, although he does not agree with the other brethren on the exact form. The fixed frames he now advocates are ordinary loose frames, so arranged as to hang in notches in the rabbets. These notches are spaced equally distant. So far as my recollection goes, all sorts of spacing-devices in the rabbet have been unpopular, and have been discarded sooner or later. The trouble is, you have got to move two or three frames, or else roll the bees over and over in moving the frame that you wish to draw out.

Well, friend Taylor, from what I can gather from your article, the half-closed-end frames you speak of were quite different from those used by Mr. Hoffman. These frames, to give the most satisfactory results, should have the widened part of the end-bar V'd—that is, so that a knife edge comes in contact with a blunt edge, and then the top-bar should be widened so as to cover up the rabbet. Or, if this is not done, the frames should be compressed by a wedge, or, better, as I now think, with thumb-screws.

I notice that you speak of closed-end frames in a tight-fitting case sticking because of moisture. This is just the point I tried to illustrate in our last issue, and to which Mr. Hutchinson takes exception. I should like to have reports from those who have been using this class of frames, as to whether they have experienced any trouble such as friend T. and ourselves have had.]

THE KING-BIRD A BEE-ENEMY INDEED.

FURTHER FACTS; DO KING-BIRDS REGURGITATE?

When I opened Gleanings for Aug. 15, and saw the pictures of the king-bird, in connection with J. W. Porter's article, it struck me as a coincidence that I had it in my mind for a week or two back to write to Gleanings and suggest that it would be to the interest of bee-keepers to open a war of extermination on these active little enemies of the apiary. I know that, in my neighborhood, they appear to be getting more common; and this, very likely, may be generally true. I shot some lately, and took from the gizzard of one the parts of as many as ten distinct bees or drones, and possibly the remains of more were there, but unrecognizable in their semi-digested state. There seemed to be nothing along with them save a few kernels of some berry as a digestive agent.

Now, on the assumption that this bird had two full meals of the kind per day, and that there are only twenty of them in my neighborhood consuming at the same rate, it means that they levy a tax on me of 2800 bees or drones per week, 11,200 per four weeks of the flying season, or probably the bulk of from one to two swarms per year, besides the honey immediately consumed in the bees taken.

They are very active on the wing, though favoring only short excursions, and not flying continuously like the swallow. Their favorite perch, when round the apiary, is on an uppermost or outmost twig of a tree. From thence they fly out and intercept their victims. At other times they may be seen flying along the roadside, perching on fences, telegraph wires, tree or bush, as it comes handy. With their dark slate-colored back and wings and white under parts, they are easily distinguishable. When round our bee-yard they are quite alert, as though they were aware that they were after mischief and might be caught in it.

On one occasion, some years ago, I saw one, sitting on a wire clothes-line, attract a passing bee by a movement of its crest and head; and when the bee came within range the bird's bill was presented open, and the poor unfortunate taken in. I was just then starting with bees, and thought that a terrible enemy had come to close quarters, as the hives were only a few yards away from the spot, and I bethought me of my gun that it would be a necessary weapon of defense.

The beautiful bright orange feathers in the crest are so well concealed that people who have shot, or seen the bird when shot, are often quite astonished when they are pointed to them, as they had never noticed them before. One can spread them out so as to make them resemble a bright-colored flower.

Notwithstanding Mr. Porter's view to the contrary, I am inclined to think that, in the matter of regurgitation of food, Mr. T. L. Waite, as reported in the A B C, is right, and that the bird may do this thing—though for my part I couldn't easily stand by and give them time to do it. On the lid of a hive, some weeks ago, I found a ball of mashed-up bees which I can account for in no other way; and as proof that, early in life, they have a habit of this kind, I have been assured by the station-master, at the village where my bees are, and who had an excellent opportunity for observation, that he watched a nest with several young ones, and saw the mother bird repeatedly carry in food which she would put into the open mouth of one of them, while she would take something from the mouth of another and carry it a few feet away, usually dropping it on the station platform as she flew off again. He pointed out the substance to me, and asked me what it was. I told him that, as nearly as I could make out, it was bird droppings. He assured me that it came out of the little bird's bill, and, when I made light of the idea, he said he had watched closely, and was prepared to give his oath to that effect.

There are some things in nature that are almost too strange to credit when we are told of them; yet that these strange things happen, we sometimes get ample proof after.

R. W. McDonnell.

Galt, Ont., Can., Aug. 29.

[Thanks for the additional facts which you give. In regard to the regurgitation matter, as given in the A B C of Bee Culture, we should like further testimony; i. e., do king-birds on occasion regurgitate wads of bees, as explained by the writer in the A B C, or is this all a hoax? In a multitude of testimony there is wisdom.]

FRAMES.

J. A. GREEN HAS DECIDED TO ADOPT THE HALF-DEPTH CLOSED-END FRAME WITH A HOFFMAN TOP-BAR.

I have been greatly interested in the discussions over the frame question. I have adopted my frame, and have four or five thousand of them in use, and probably shall not change again very soon. Still, I like to hear the talk of those who are not yet out of the woods, and I hope that, from the combined experiments of the many who are just about to adopt some form of fixed frame, something may be evolved better than any thing we have now.

Dr. Miller and Miss Wilson make very plain some of the reasons why fixed frames are superior to hanging frames; and when they come to use them more and learn the very many ways in which time and labor may be saved by their use, I shall expect them to grow still more enthusiastic over the subject.

It would seem, from what I have read, that the usual way of handling Hoffman frames is to set the frames loosely in the hives just as though they were hanging frames, and then crowd them up close together. When this is done a large number of bees must inevitably be crushed. My end-bars fit close for a little over five inches, and I very seldom kill any bees between them. The frames should always be kept tight together as far as possible, as they are set back into the hive. When I replace a frame in the hive I put the bottom of its ends against the ends of those in the hives, and slide it down, keeping the frames close together. No bees can get caught between the uprights, so none are crushed there. The only bees killed are the few that get caught between the ends of the top-bars as they come together, and between the top-bars and rabbet. With a little care, even this may be avoided. As the combs are straight, with no brace-combs between, bees are not hurt by being rolled between the comb surfaces, as so often happens with loose frames. If, for any reason, it is not best to put them together in this way, they may be put nearly down and brought nearly together, when a slight lateral vibration will make the bees get out of the way.

In order to slide frames together in this way so as to avoid catching bees, it is necessary that the end-bars be kept pressed tightly together in order that propolis may not accumulate between. I think you are wrong when you think that the wedge, or, what is far better, the screw, may be dispensed with. Some of my hives have been in use four years. The frames have been kept tightly screwed together, and there is practically no propolis between the end-bars. My nuclei are on three or four frames, in the regular hive. The frames are simply pushed up close together. Within two months so much propolis has accumulated between the end-bars that they are much more difficult to handle.

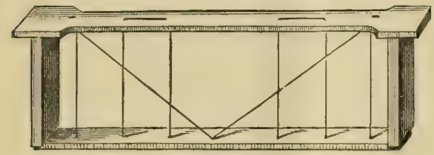
Dr. Miller wants a better bee-brush. Take a piece of broom-handle of convenient length. Saw a slit in the middle, a little longer than your frame is wide. Crowd this slit full of pieces of binding twine—rope raveled out will do, but is not so good—and then nail through with wire nails, clinching them. Trim the fiber off even, and you will have a brush that will take all the bees off a comb at one sweep, and that does not need to be renewed every day. This idea is not altogether original with me, but it's just as good as if it were.

Since one of Dr. Miller's "straws" has dragged my rose-bush into print, let me tell you that he hasn't told the whole truth. His information is old. The bush in question, which is a Bomsault climber, covering a space on the side of the house 15¼x17 feet (you see I've just measured), has now 36 varieties of hybrid perpetual and tea-roses growing in it. As I write, 9 distinct varieties are in bloom, and it has borne a constant succession of the choicest roses all summer. The man who is not helped and made better by a love for and association with the beauties of nature is an anomaly.

What about that "sure sign of swarming," quoted from the *Canadian Bee Journal?* Is the "raking" motion of bees on the alighting-board a sure indication that they will swarm that day or the next? This is important, if true. But I am very sure it is not true.

Dayton, Ill., Aug. 24. J. A. Green.

After receiving the communication we wrote friend Green, inquiring if the cut, which we here reproduce, was correct, and asking for more information on points suggested in his article. The nature of the questions will be readily understood from the reply, which is of so much interest we give place to it below, with the cut.



J. A. GREEN'S FIXED FRAME.

The engraving omits the central tin-bar, which is a necessity with a thin top-bar, and, in a sectional brood-chamber, the top-bar must be thin so as not to make too great a division in the brood-chamber. The brood-chamber is in two stories, and the frames are pressed together with screws as in the Heddon hive. The frames are much more easily handled than frames that fit close to the ends of the hive, while the hives may be just as readily handled. Bees may be shaken out, and, in fact, every thing in the way of "handling hives instead of frames" done with this hive as well as with any. The ends of the frames, fitting closely together ⅜ of an inch away from the end of the hive, form a double wall with dead-air space between, which is of considerable value for protection. By laying a sheet of enameled cloth over the frames, the bees are in a hive as tight as a box hive, and in the best possible shape for breeding up in the spring.

My hives are made with a shallow rabbet on the lower edges. By turning the hive over and putting the frames in from that side, the frames are flush with the top of the hive and the bee-space below. The hive may now be reversed as a whole, to get the frames solidly filled with comb, or for any other purpose for which inversion is desired. Screws can not be depended on to support the frames when inverted, so I use strips of heavy tin slipped between the ends of upper and lower stories. If it is desired to invert the lower story, it is pushed back a little on the bottom-board, which supports the back ends, and the front ends are held up by a strip of tin with two or three small blocks under the middle. Your Hoffman frames might be reversed in the same way. Inversion is seldom profitable except for getting the frames full of comb. For this purpose it is almost indispensable.

In the brood-chamber, 8 frames occupy a space 11 inches in width, measuring to the outside of frames, the hive being ⅜ inch wider. For extracting, 7 frames fill the same space. All transferring is done into extracting-frames. After these thick combs have been extracted from two or three times, the crookedest combs are straight.

I made my frames 5⅝ deep in order to use a lot of combs I had. If I were to start over again I would make them only 5 inches deep.

Dayton, Ill., Sept. 1. J. A. Green.

[I have read your article with more than ordinary interest, perhaps because it is one of my hobbies. I fear that, if you don't change your mind, our friend C. P. Dadant will have to labor with *you* on the undesirable features of fixed frames (see page 703).

I was not certain that compression was necessary with fixed frames; but that uncertainty, in the last few days, has changed to the conclusion that I want compression, and I am rather inclined to the belief that Manum's thumbscrews are the best for the purpose. As I have explained elsewhere, wedges do not give *sufficient* compression.

In handling Hoffman frames I use both methods of adjusting them to position; i. e., sliding them against each other as you explain, and crowding them up together. The proper use of the smoker just before closing them up will drive the bees all, or nearly all, out of the way.

I have practiced reversing the Hoffman frames this summer on the plan you describe, and I believe I have explained it somewhere in Gleanings. I agree with you that the chief object in reversing is to get well-filled-out, straight combs; and with all frames that admit of compression we can accomplish this very nicely.

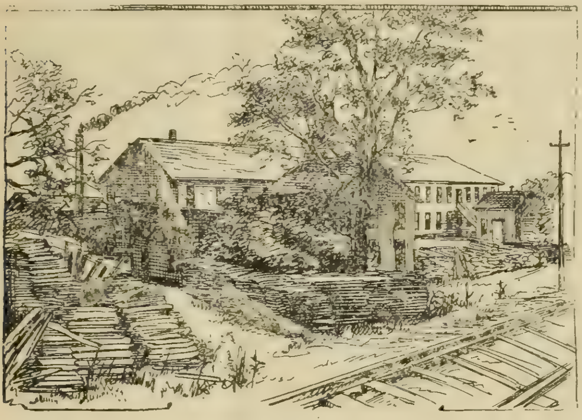
You were right in deciding on a bee-space back of the end-bars. Full-depth closed-end frames without the bee-space have been any thing but satisfactory, on account of hitching in in withdrawing. If every thing is made perfect, and moisture doesn't interfere, they work well.]

RAMBLE NO. 45.

AT THE W. T. FALCONER MANUFACTURING CO'S.

After leaving Onondaga Co. we cross the outlets and catch views of nearly all of those beautiful lakes which make Central New York justly famous. The many thriving towns in their vicinity, and the tidy farmhouses thickly dotting the landscape, is an evidence of the fertility of the soil and of the thrift and prosperity of the occupants. These lakes, though separated from each other by only a few miles of land, have characteristics peculiarly their own. Seneca Lake is peculiar from the fact that it is very seldom frozen over. Like a large spring welling up from unknown depths, it is proof against the congealing effects of frost. Lake Keuka is also peculiar, from the fact that the influence of the water, and the contour of the surrounding country, make it a very paradise for the grape-grower, and over 40,000 acres of vineyards greet the eye as we float over its waters in one of the many pretty steamers in constant use. Whenever we ride upon these steamers upon any of our inland lakes, the price is much more per mile than railroad fare; but what was our surprise when charged the ridiculously low amount of 10 cents for a 22 mile ride! We felt just like spending a whole week riding back and forth. In consequence of these low rates, picnics and pleasure-parties of all kinds are on the lake every day; and even at these low rates the traffic is remunerative. In addition to passenger traffic there is much merchandise carried; and in autumn the boats are loaded to their utmost capacity with the luscious products of the vineyards. There are not many bees kept in this locality, and consequently there is not much conflict between the fruit-grower and the honey-producer; and the fruitmen with whom we conversed, we were happy to find, were enlightened enough to know that the sin of grape destruction is not altogether the fault of the bee.

In the vicinity of the lake we found Mr. Beckwith, with 50 or 60 colonies of bees, but they were evidently not doing much, and his business of handling supplies was also suffering from the same cause. A drouth prevailed to such an extent that the white-clover honey crop was an entire failure. Bee-keepers are not disposed to talk much about their pets when there is but little sign of business in the apiary, so we pursued the even tenor of our journey, which allowed us to pass over another of those beautiful New York lakes—the world-renowned Chautauqua. The thousands of readers and graduates of the Chautauqua Literary and Scientific Circle think of the assembly grounds located here as their *alma mater*, and to make at least one pilgrimage here while pursuing their course of studies. The city of Jamestown is very pleasantly located at the eastern end of the lake, and is known to all readers of bee-literature as the address of W. T. Falconer, the bee-hive manufacturer, though his home and factory are two miles away in the little village of Falconer. In 1876 the making of bee-hives was begun in a small way, in connection with a custom sawmill, and, we believe, a sash and blind factory. The bee-hive factory has increased from year to year. Several enlargements have been made, until Mr. F. has one of the largest plants in the Eastern States, and probably as large as any in the country in the special line of bee-hives and sections. The factory is equipped with fine machinery, and Mr. F. sustains a reputation for good work. His sections are made from seasoned lumber, and a stroll through his lumber-yard will convince any one that he is ready to meet the most urgent demand. The idea of working up such piles of lumber into sections gives one an idea of the number of bee-keepers and the extent of the business. Mr. F. thinks he can not make his sections smooth enough with a saw, so they are all run through a planer. The same care is exercised through all bee-hive work; and while many kinds of hives are made, the great run during the past two seasons has been upon the Dovetailed hive. At the time of our visit, a thin ⅜-inch-walled Dovetailed hive was being constructed, over which a thin outside case would be used in the winter. The Rambler was much pleased with this hive, and believes it is an experiment in the right direction.



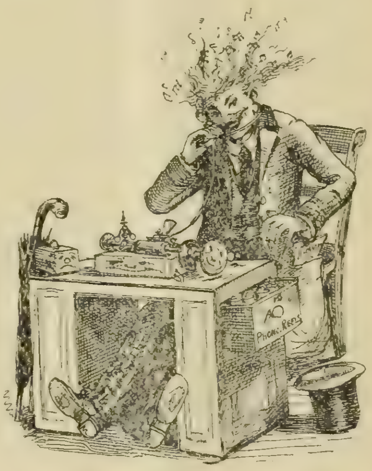
W. T. FALCONER & CO.'S FACTORY, FROM A HAWKEYE PHOTO.

The tin department of the factory was rather light, as no smokers nor extractors were manufactured, but were kept in stock in great variety. The wax department was not very lively, but there were tons of wax ready to be worked into foundation.

In the office we were treated to a song from the phonograph. This song was taken on a wax cylinder, in a theater in New York. The machine was adjusted, and the Rambler was seated before it, with tubes inserted in his ears. The phone has to be run at a very even speed, and a little water-motor here supplies the power; but in many places electricity is more available, and is the motive power. Friend F. then touched the lever. We heard at first a gurgling sound, and a splash and a bang; and then a whole orchestra was playing in our ears. Then the song commenced, and it was reproduced perfectly. We arose from our first interview with the phonograph with a sort of awe-struck feeling, not only toward the invention and the inventor, but toward the age in which we live.

Mr. Falconer is not much of a bee-manager himself. His time is devoted to the mechanical productions, while his partner, Mr. D. E. Merrill, gives a portion of his time to the bees, and edits the *American Bee-keeper*, which seems to have a healthy circulation. The partner was away at the time of our call, engaged in seeing to the next issue of the *Bee-keeper*, which is printed in Jamestown.

We found here, as elsewhere upon our journey, a little complaint about the unfavorable outlook for the season, and which is usually felt at the supply-factory as the season advances. For the continued prosperity of the supply-dealer and the honey-producer, may there be more bountiful honey seasons is the earnest wish of the RAMBLER.



RAMBLER INTERVIEWS THE PHONOGRAPH.

[The Hawkeye photograph of Falconer's place of business was not very clear, hence we had to use zinc etching. We should have preferred to give our readers a real view by the half-tone process. Our business transactions with the W. T. Falconer Co. have been the pleasantest; and we are glad to note that they have built up their business by square dealing and good goods. GLEANINGS wishes them more and greater prosperity, and a booming circulation to the *American Bee-keeper*, of which they are the publishers.]

BEES AS FERTILIZERS.

READ AT THE ASSOCIATION FOR THE ADVANCEMENT OF AGRICULTURAL SCIENCE, WASHINGTON, D. C.

Darwin's memorable researches and generalizations in relation to the fertilization and cross-fertilization of plants, through the agency of insects, are not the least of his many valuable scientific discoveries, nor yet are they least in their bearings on economic questions. His classic investigations settled the question of the great value of insects in securing full fruitage to many of our most valuable fruits and vegetables. Since Darwin, many scientists have, by crucial tests and experiments, abundantly confirmed his conclusions. Our more intelligent practical men have also made significant observations. They note a scarcity of insect visits to the blossoms of the first crop of red clover, and also its failure to bear seed. The alsike clover is freely visited in early June by the honey-bee, and bears a full crop of seed. In New Zealand, the red clover failed to seed at all seasons, and there was a conspicuous absence of insects upon the blossoms, both early and late. This led to the importation of bumble-bees from England, to the earth's very limit, and now the New Zealand farmer produces clover seed. Gardeners keep bees to-day that their vegetables may fruit and seed more liberally. Even the producers of flower-seeds in our cities keep bees in their greenhouses, as they find this the easiest and cheapest method to secure that more perfect fertilization upon which their profits depend. Secretary Farnsworth, of the Ohio Horticultural Society, could account for a very meager crop of fruit a few years since, in his vicinity, after a profusion of bloom, only through lack of pollenization. The bees had nearly all died off the previous winter. I have often noted the fact, that, if we have rain and cold all during the fruit-bloom, as we did in the spring of 1890, even trees that bloom fully are almost sure to bear as sparingly.

Darwin's researches considered insects as a whole, and it is true that all insects that visit flowers, either for nectar or pollen, do valuable service in this work of pollenization. Thus many of the hymenoptera, diptera, and coleoptera, and not a few lepidoptera, are our ever ready helpers as pollenizers. Yet early in the season, in our northern latitudes, most insects are scarce. The severe winters so thin their numbers that we find barely one, whereas we will find hundreds in late summer and early autumn. In late summer the bumble-bees and paper-making wasps number scores to each colony, while in spring only the one fertile female will be found. This is less conspicuously true of solitary insects, like most of our native bees, and wasps; yet even these swarm in late summer, where they were solitary or scattering in the early spring. The honey-bees are a notable exception to this rule. They live over winter, so that even in early spring we may find ten or fifteen thousand in a single colony, in lieu of one solitary female, as seen in the nest of bombus or vespa. By actual count in time of fruit-bloom in May, I have found the bees twenty to one of all other insects upon the flowers; and on cool days, which are very common at this early season, I have known hundreds of bees on the fruit-blossoms, while I could not find a single other insect. Thus we see that the honey-bees are exceedingly important in the economy of vegetable growth and fruitage, especially of all such plants as blossom early in the season. We have all noticed how much more common our flowers are in autumn than in spring time. In spring we hunt for the claytonia, the trillium, and the erythronium. In autumn we gather the asters and goldenrods by the armful, and they look up at us from every marsh, fence-corner, and common. In May *our* flowers demand a search, while in California the fields of January and February are one sea of blossoms. The mild California winters do not kill the insects. There a profusion of bloom will receive service from these so-called "marriage-priests," and a profusion of seed *will* greet the coming spring time. Thus our climate acts upon the insects, and the insects upon the flowers, and we understand why our peculiar flora was developed. Yet notwithstanding the admirable demonstrations of the great master Darwin, and the observations and practice of a few of our intelligent practical men, yet the great mass of our farmers are either ignorant or indifferent as to this matter, and so to the important practical considerations which wait upon it. This is very evident, as appears from the fact that many legislators the past winter, when called upon to protect the bees, urged that fruit-growers had interests as well as the bee-men, not seeming to know that one of the greatest of these interests rested with the very bees for which protection was asked.

Now that we understand the significance of the law of adaptation in reference to the progressive development of species, we easily understand why our introduced fruits that blossom early would find a lack of the "marriage-priests," and why it would be a matter of necessity to introduce the honey-bee, which, like the fruits, are not indigenous to our country, just as the bumble-bee must go with the red clover, if the latter is to succeed at once in far-off New Zealand.

It is true, that we have native apples, cherries, plums, etc. But these, like the early insects, were scattering, not massed in large orchards, and very likely the fruitage of these, before the introduction of the honey-bee, may have been scant and meager.

Now that spraying our fruit-trees with the arsenites, early in the spring, is known to be so profitable, and is coming and will continue to come more generally into use, and as such spraying is fatal to the bees if performed during the time of bloom, and not only fatal to the imago, but to the brood to which it is fed in the hive, it becomes a question of momentous importance that *all* should know that bees are valuable to the fruit-grower and the apiarist alike, and that the pomologist who poisons the bees is surely killing the goose that laid the golden egg. That bees are easily poisoned by applying spray to trees that bear nectar-secreting blossoms, at the time of bloom, can be easily demonstrated by any one in a very short period of time. It has been demonstrated in a frightfully expensive manner in several apiaries in various parts of the country. Several bee-keepers, whose all was invested in bees, have lost all this property, all because some fruit-growing neighbor either thoughtlessly or ignorantly sprayed his fruit-trees while in bloom; and this in the face of the fact that, for the best results, even in the direction sought, the spraying should be deferred until the blossoms fall. I have demonstrated this fact, where the results were entirely in sight. I have shut bees in a cage, and given them sweetened water, containing London purple in the proportion of one pound to 200 gallons of water, and in 24 hours the bees were all dead; while other bees, in precisely similar cages, and fed precisely the same food, with the poison omitted, lived for many days.

We thus see that it becomes very important that pomologist and bee-keeper alike know the danger, and also know the loss to both parties in case caution is not observed to avoid the danger and probable loss. It is also important that, by definite experimentation, we may learn just how important the bees are in the pollenization of plants. To determine this point, I tried many experiments last spring. I counted the blossoms on each of two branches, or plants, of apple, cherry, pear, strawberry, raspberry, and clover. One of these, in case of each fruit or each experiment, was surrounded by cheese-cloth just before the blossoms opened, and kept covered till the blossoms fell off. The apple, pear, and cherry, were covered May 4th, and uncovered May 25th and May 19th. The number of blossoms considered varied from 32, the smallest number, to 300, the largest. The trees were examined June 11th, to see what number of the fruit had set. The per cent of blossoms which developed on the covered trees was a little over 2, while almost 20 per cent of the uncovered blossoms had developed. Of the pears, not one of the covered developed, while 5 per cent of the uncovered developed fruit. Of the cherries, 3 per cent only of the covered developed, while 40 per cent of the uncovered blossoms set their fruit. The strawberries were covered May 18th, and uncovered June 16th. The number of blossoms in each experiment varied from 60 in the least to 212 in the greatest. In these cases, a box covered with cheese-cloth surrounded the plants. The plants were examined June 22d. Eleven per cent of the covered blossoms, and 17 per cent of the uncovered had developed. To show the details, in one case 60 blossoms were considered, 9 of which in the covered lot, and 27 in the uncovered, had developed. That is, three times as many flowers had set in the uncovered as in the covered. In another case of 212 blossoms, the fruit numbered 80 and 104. In a case of 123 blossoms, the number of fruit was 20 and 36.

These experiments agree with similar ones of former years, in seeming to show that strawberries are less affected than other fruit by the exclusion of insect visits. The raspberry canes were covered with cheese-cloth May 30, and uncovered July 6. In every case but one the canes seemed to have been injured by the covers, and so the results were not considered. In the exceptional case, 184 blossoms were considered; 93 blossoms developed on the covered canes, and 160 on the uncovered. In every case the fruit on the covered twigs was inferior. It might be thought that the simple presence of the covers was prejudicial; though this could not be a very important matter, as blossoms covered after the bees had freely visited them set well, and showed no injury. Thus we see that, in all our fruits—strawberries the least—the free visits of insects during the period of blooming is absolutely essential to a full or even a fair crop. In many cases the covered blossoms all failed to develop. We also see that, where fruitage does occur, there seems a lack, as the fruit lacks vigor. The free and ample *cross-fertilization* seems to be requisite, not only for a crop, but for a perfect development and maximum vigor.

Our experiments with clovers were tried with both the white and alsike. While the uncovered heads were full of seeds, the covered ones were entirely seedless. This fully explains the common experience of farmers with these plants.

Having the law of the necessity of insects to accomplish this function so well demonstrated, it might be asked, "Why do we have *any* fruit in case the blossoms are covered?" This seeming exception may be no exception. Indeed, this may come from the fact that *all* insects are not excluded. Very small insects, like the thrips, and various of the jassidæ, which we know are often attracted to flowers, either by the pollen or nectar, would be concealed about the plants, and, from their small size, might gain access, even after the covers were adjusted. These would be sufficient to secure partial fertilization, and very likely are the cause of the meager crop which, in a few cases, we secured, even on the covered twigs.

In case of strawberries, our experiments this year, like some previously tried, seemed to show that the presence of insects, though important to a maximum production, are not so necessary as in case of nearly all other fruit. But we must remember that the strawberry-plants are not wholly inclosed. A cloth-covered box rests on the ground about the plant. This gives a fine chance for insects that burrow in the earth, and for insects that have pupated in like position, to come up during the three or four weeks of the experiment, and pollenize the blossoms. This, though a possible, and (shall I say?) a probable explanation, may not be the real one. But we can still affirm, in case of the strawberry, that the free visits of insects serve surely to much enlarge the production of fruit.

Thus we see that our horticulturists and farmers alike, with the apiarist, are dependent for the best prosperity on the presence and well-being of the bees. They should realize this fact, and should demand that our legislators not only become informed, but act accordingly.

Agricultural College, Mich. A. J. COOK.

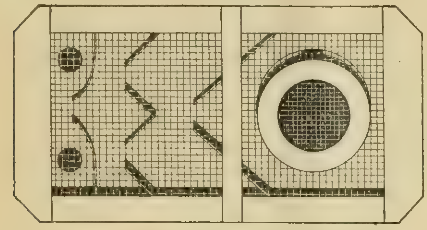
[We believe this paper to be the best, in point of definite facts, and most comprehensive, of any thing we have ever read. It is so valuable that every reader of this journal should peruse it carefully, that he may be able to talk intelligently to his farming and fruit-growing neighbors who unfortunately, in many cases, regard bees as a positive detriment to the proper maturing of fruit. Almost every year we come across farmers in the vicinity of our home apiary and out-yards who *persist* in saying that our bees are responsible for their trees not fruiting, and so this sort of ignorance is gaining currency in many localities, much to the detriment of the bee-keeper and the fruit-grower. This ignorance, and perhaps prejudice, should be dispelled by solid facts, such as Prof. Cook gives; and we hope our agricultural exchanges, and journals devoted to fruit-growing in particular, will give this paper of Prof. Cook's a wide circulation. We shall be glad, also, to send extra sample copies of this journal for bee-keepers to distribute among their neighbors who need a little "posting." That the good work may continue to go on, we have decided to make this article over into a leaflet for general distribution. To cover bare cost and postage, these leaflets will be sent to all who apply, for 5 cts. for 25; 10 cts. for 50; 25 cts. for 200; 60 cts. for 500, or $1.00 per 1000, postpaid. Now let bee-keepers do a little missionary work for themselves and neighbors, and thus avoid, in some cases, these unpleasant clashings between the bees and the fruit.] E. R.

THE NEW BEE-ESCAPES.

DIBBERN'S LATEST.

The cut will give a general idea of the new Dibbern bee-escape, and is the final result of a long series of experiments. It has stood the test of actual use on crowded hives in warm weather, and under difficult conditions.

This escape is entirely original with me—there is not a principle or idea copied from any other escape. I now claim this is the final complete success of my theory, that no "force" or obstructions such as springs or trap-doors are necessary in a complete bee-escape. It is no labyrinth, but a system of plain passageways. The bees travel less than four inches from the entrance to the outlet of the escape, and they pass through much more rapidly than where obstructions are used. The body of the escape is made of one piece of tin, with proper holes for ventilation, and outlet of bees. The ventilator directly under the inlet also serves to draw the bees out of the super.



DIBBERN'S IMPROVED BEE-ESCAPE.

This escape is plain and simple. There is no delicate machinery to get out of fix, and bees do not find their way back through it, no matter how crowded the hive may be. All parts of the interior of the escape can be seen; and should any clogging ever occur, which is not likely, it can be easily cleaned by removing the middle strip and springing up the wire cloth, or removing it entirely. It can be readily replaced. This escape ventilates the super better than any other, and this point is of great importance in hot weather.

While I have given a great deal of time and study to perfecting what I call my principle, I have not overlooked what can be done with springs, traps, etc. Out of some half a dozen devices on this plan, I have produced a little escape only 1¼x4 inches, that pleases me greatly. It is made on the flood-gate principle. The little gates are made of broom wire, in such a way that the bees from the hive side can not reach the hinges, and cause trouble by propolis. The great advantage in this escape is, that five or six bees can escape through it at once, and not a bee can get back. I do not see where there can be any trouble, and I have had a number in use for some time; but should the working parts ever become sticky, they can be readily cleaned by putting the escapes into boiling water. I have found this to be the most rapid escape I have ever tried, and have named it the "Little Giant." It is advertised in this number of Gleanings. In making my numerous experiments I have been greatly aided by the fact that I have a tin-shop, and can do ordinary tinner's work. I would get an idea of a device, and at once make it myself; and before night I would find out what the bees thought of it. In this way I soon knew whether an idea was practical or not, and what changes ought to be made.

The escape-boards may be made of any thickness from ⅜ to ½ inch. These boards make the very best covers for supers, and are also good covers for brood-chambers while in winter quarters. It is a good plan to have as many escape-boards as there are hives, with the holes for escapes all cut to a uniform size. These holes should be closed with little pieces of board, with tin on the upper side. Now, when a super is removed, when cleared of bees it is only necessary to exchange the escape for the wooden plug, and the bees need not be greatly disturbed. This plan will be found a great advantage over removing the boards every time a super is taken off.

Milan, Ill. C. H. Dibbern.

[We have tried the escape illustrated in the engraving. It does not seem to free the super as quick as the Porter. I suspect the reason is, that the bees sort o' get lost in getting out, though further trials may show different results.]

BEES ON SHARES.

THE PRACTICE DEFENDED; FORM OF CONTRACT; HOW TO AVOID DISAGREEMENTS, ETC.

Other work taking nearly all of my time, I get only glimpses of Gleanings and the bee-world. I see that knotty problem, "bees on shares," is still a topic under discussion. You and I will disagree. The plan is a good one for both parties many times. A wants employment, and perhaps wants to build up his apiary. B has an apiary that he can not sell to advantage, and does not care to; yet health, or other business more profitable, prevents him from working bees himself. Why not one help the other? There has been but little time in eighteen years that I have not worked or let bees, ranging from a few colonies to whole apiaries; and to the best of my knowledge there has never been a bit of dissatisfaction. This is due, I think, to three points. 1. Give and take what experience has taught would *probably* be fair to both parties in that *locality;* 2. A fair understanding in the beginning, each party having a copy of the contract; 3. A knowledge of your man. I would not think of letting a man have my bees, of whom I had the least suspicion of dishonesty. I should also prefer to have them in the hands of a man who "makes haste slowly" in the way of new-fangled things. You let your bees for profit, not for experimental purposes. I should not like to take bees from one that had no knowledge of bees or conditions affecting the honey-flow. A poor season might be the cause of losing a good friend. In localities where there is always a good honey-flow, the danger in this direction would be greatly lessened.

The main points in my last contract are, A owns stock, B experience. B takes the stock (and in this case the fixtures on hand are loaned by A), furnishes the yard and tools necessary for working the same; does the work, and receives for his compensation half of surplus increase of stock, and half of any other profits arising therefrom, including the sale of queens, nuclei, wax, etc., A and B to share equally the expense, except that of labor; settlement and division to be made on or after Oct. 1st of each year. Should A and B fail to agree on the division of stock it will be left to the decision of three disinterested persons, one of whom is selected by A, one by B, the two to select a third. The action of the "board" is to be final. Expense of arbitration is borne equally by A and B. B is to leave all colonies in good condition for winter, with not less than 25 lbs. of honey per colony. This is not to be construed to mean that, in case there is not sufficient natural stores gathered, B is to feed to make good the deficit.

What is the original stock to be returned? Is it the swarm issuing, the one remaining in the old hive, or an equal number in good condition? A and B usually use a different style of hive, hence it has been my practice to increase naturally, giving A the first, B the second, A the third, and so on, the old hive with the new queen remaining original stock.

I think an agreement of this kind, changed to suit different localities and conditions, can be made satisfactory to both parties.

Lima, Ohio, Aug. 28. J. K. McClurg.

[There, friend M., you have given us just the article we have been looking for. It is no doubt true that there are times and occasions when bees may be kept with profit on shares. Your form of contract seems to cover all or nearly all contingencies that are likely to arise; and although there have been a great many troubles and disagreements between the contracting parties, we believe it is mostly because of a lack of a good contract and a proper understanding. It is an excellent idea to agree to settle all disputes that may arise, by arbitration; and if both parties agree to abide in the first place on their decision, there ought to be no hard feelings left. As you suggest, different localities might require different forms of contract. For instance, in warm climates they have no winter troubles to contend with: and there can be no dispute or disagreement over serious losses of bees during winter as to who should stand the losses or who is responsible for said losses. In localities where there is usually a good flow of honey, it would not be a difficult matter to divide the proceeds; but in localities where the season is uncertain, one good year, say followed by two or three very poor ones, it is sometimes difficult to decide what are actual losses and what are actual profits.]

MOVING BEES TO NEW HONEY-FIELDS.

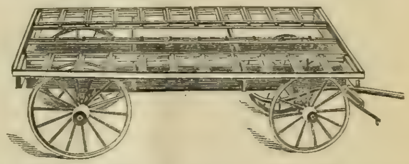
HOW J. A. GREEN DOES IT.

This is a time when many bee-keepers will find it to their interest to see if there is not some locality near at hand where there is a better prospect for a fall crop than there is at home. Every year's experience with out-apiaries makes me see more clearly the great difference there is in localities. Locations but a few miles apart may differ widely in both the quantity and quality of the honey they will yield. My Marseilles apiary is five miles southeast of the home apiary. Both are close to timber-fringed rivers running through a prairie country. My Wallace apiary, four miles west, is on the prairie, but within reach of the timber and river bottoms. There is a very perceptible difference in the yield at these places. Some experiments, tried several years ago, showed me that bees did better only a mile and a half away from the home apiary. These things convince me that bee-keepers might often, with comparatively little trouble or expense, largely increase their yield by moving their bees to more favorable locations.

With many of the hives in use it is a very laborious and somewhat risky job to move bees by wagon. But with the light, readily movable hives and fixed frames so rapidly coming into use, it is much simplified. With proper appliances and methods it becomes a very easy matter to load up an apiary and move it to a new location. Last fall I drove to an out-apiary, with one assistant. The hives were just as they had been during the honey-season. The bees were fastened into the hives, the parts of the hive securely fastened together, and the hives loaded on the wagon, ready to start back, in a time that was an average of just two minutes to each hive.

Bees may be moved very successfully on an ordinary hay-rack. Put boards in the middle to make it as nearly level on top as possible. On this load the hives, with the combs running crosswise of the wagon. Some put on part of a load of hay or straw, and set the bees on that. This is unnecessary unless the roads are very rough, or at a time when combs are brittle; and it is objectionable because it is difficult to set the hives on it so that they will be level and will not swing and rock. It is this rocking motion more than sudden jars that does the mischief with hanging frames, and it must be avoided as far as possible.

My rack was made for hauling bees. It is raised high enough to clear the hind wheels, making it flat on top, as per cut.



J. A. GREEN'S WAGON AND RACK FOR MOVING BEES.

If I were to make another I would have running-gear made with the hind wheels the same size as those in front, so it would not have to be so high. The top is divided up so as to take four rows of hives, eleven in a row. Each hive fits into a compartment of its own, without touching other hives; and whenever hives are placed on the rack, no matter how few or how many, they will ride safely without any slipping about.

There is a box below as large as an ordinary wagon-box, in which other hives, or whatever is desired, may be hauled. Springs are not really necessary. I have hauled a great many bees over very rough roads, without springs, and without bad results; but this spring I came across some springs made by the Racine Economy Spring Co., to fit the ordinary farm-wagon, that proved to be just the thing. With them the rack rides almost as easily as a good buggy, and I should almost want them for my own comfort, if nothing else. They work well whether the rack is loaded or light.

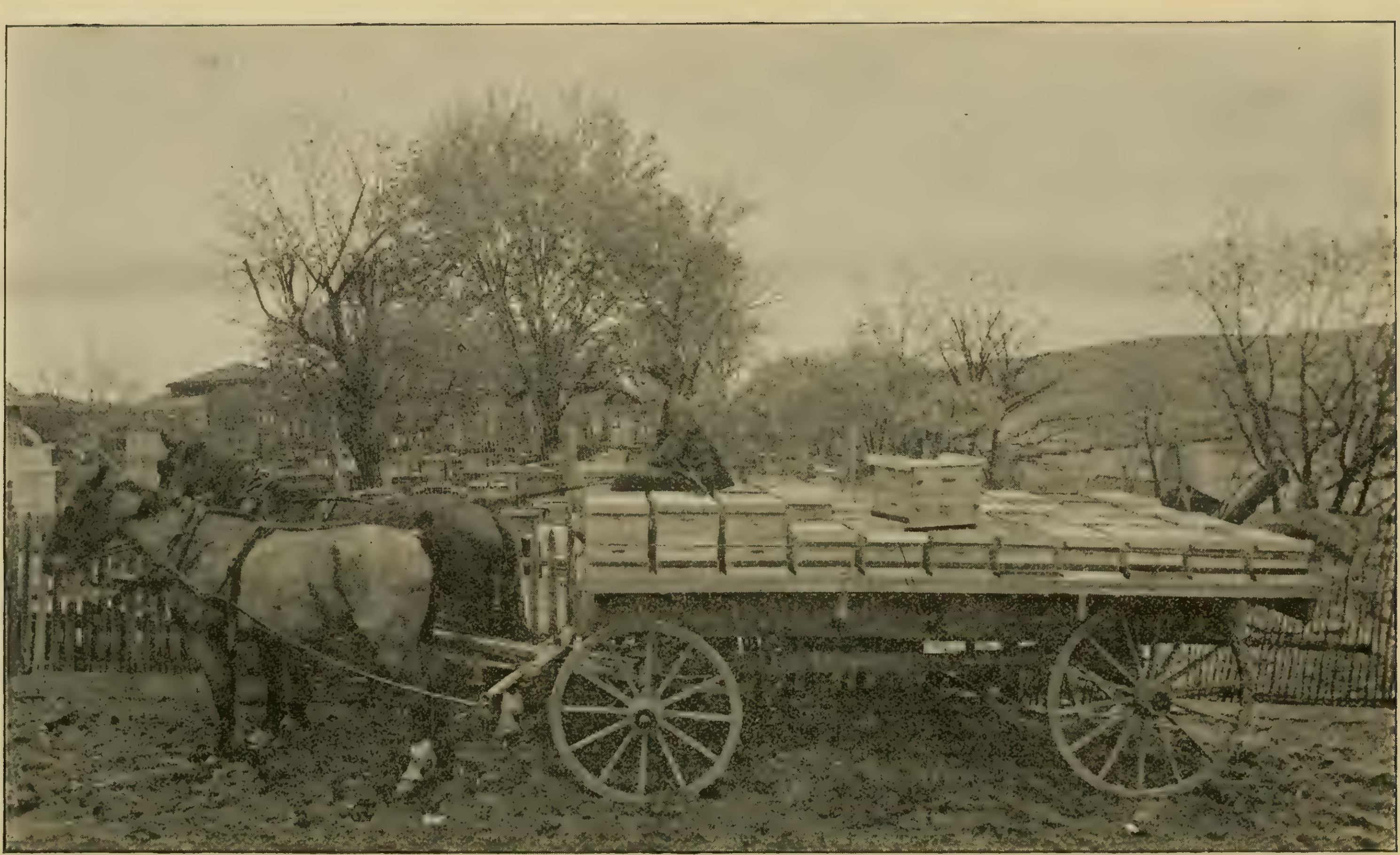
For fastening the hives together I use the wire loop which I described before, and was illustrated by you. The more I use this the better I like it, and I use it for a great variety of purposes. For hauling hives and supers to and from out-apiaries I used loops long enough to fasten together four sections of my hive or five supers, making a package as easily handled as a single box.

For fastening the bees in the hives I use a strip of lath. On one side the middle is cut out to correspond with the entrance. Over this is tacked a folded strip of wire cloth. The whole is fastened over the entrance by a couple of inch wire nails. In hot weather a frame covered with wire cloth takes the place of the cover. With these arrangements hives are very quickly prepared for moving, and two trips will move a good-sized apiary.

I send you photographs showing the rack empty, also loaded with bees. The large picture shows a load that had been wintered in the cellar just over the fence. The apiary and honey-house are in the background. The hive on top shows how the parts of the hive are fastened together. A light rope is run around the load, as a precaution against any possible jolting out of place. J. A. GREEN.

Dayton, Ill., Aug. 25.

[Your article, friend G., is very timely, especially for those who will be hauling home their out-apiaries about this time of year. As we have just moved our Shane apiary to our home yard, over quite a hilly road, covering a distance of seven miles, I am in a position to appreciate and indorse almost every point you make above. We brought the apiary home in two loads. For the purpose of experiment, 27 colonies were put into our spring platform market-wagon for the first load; but as the



LOAD OF BEES READY TO START FOR AN OUT-APIARY.

colonies were all on Hoffman frames, I concluded we might just as well haul home the remainder of 57 in our lumber-wagon, with a hay-rack. We started for this second load about noon, in the midst of a light rain, from the Home of the Honey-bees, and arrived at the out-yard about half-past one. By this time the clouds had cleared away, and the sun was out bright and the air was full of bees. This did not strike me very favorably on alighting from the wagon. I told our teamster, Mr. Ward, we would try what we could to smoke the bees in; but after working about half an hour to no purpose, we concluded we would wait until it rained, or toward evening. I have heard the advice given, that bees will not fly if you smoke them; that the smoke would keep the remaining bees in the hive, and those returning would stay afterward. But it certainly did not work in this case. After waiting a couple of hours, a thunder-shower came up; and then we set to work in earnest, put the bees in, fastened the covers and bottoms, and laid the hives on the wagon. Two of us, in about an hour and a quarter, prepared 57 colonies in eight-frame Dovetailed hives, and set them on the wagon. This would make only about a minute and a quarter for each hive, after the rain set in, so we could close the bees in. We should have been enabled to do it in less time, but the rain poured down so furiously that we could hardly see to work, to say nothing of being dripping wet. Each hive had to be carried quite a distance around a building, under some low-spreading apple-trees, and finally we had to crawl over a rail fence before depositing them on the wagon. Now, if these bees had been on loose frames we should have spent all the afternoon, and more too, in getting the frames stuck up. As it was, we did not even open the hives. We used the same kind of entrance screen as you describe, exactly; and two wire nails held all securely in position. Last year I looped the cover and bottom with tarred twine; but this year I thought we would try using four wire nails instead. These were an inch and a half long, and were driven through the cover, one on each side, and two in the bottom, so that the heads just stuck out. The operation was very much shorter than I had supposed, and on arriving home the nails drew out very easily with a claw-hammer. As the frames were fixed—that is, Hoffman—in order to nail the bottom-board on all we had to do was to turn the hive on its side. Imagine, if you please, the fun of doing this with loose frames. But let me say, I drove no nails until the entrance screens were fastened. Then I had every thing my own way.

After the hives were all on, the load looked very much like that shown in your picture, only the hives were piled up two tiers high, in many cases. Add to this the fact that they weighed on an average from 60 to 75 pounds each, and you will get some idea of the extent of the load. As nearly as I can estimate, there was something over 3000 pounds weight, including bees, honey, and hives. To provide against any emergency I hitched a rope to the draw-pin of the doubletree, so that, in case any bees got out and made a rumpus, all we would have to do would be to draw the rope, drive the team away and leave the wagon standing. This hint I got from Mr. C. A. Hatch. As soon as we hitched on the big team, Mike, the bigger one, showed right away that he knew that bees were roaring behind him, and I feared he would not stand much in the way of stings. After we had got nicely started, to my horror I saw that the bees were getting out of one of the hives near the horses; and not only that, they had commenced stinging myself, and were threatening the driver and horses. I quickly grabbed up a wet rubber coat and crammed it tight around the entrance, and with my hands I commenced smashing the bees that were in the air. It was now fast growing dark, and the heavy black clouds gave indications of rain; and an intensely dark night, with seven miles ahead of us, with very bad roads, and one or two railroad cuts that were any thing but easy to get over, were not very cheering. I felt considerably nervous, and employed myself in running on top of the load, inspecting the entrances as long as I could see, and then ran ahead of the team, so as to give the driver warning of bad places in the road. After we got over the worst places I mounted the wagon, and in about two hours' time we were home safe, with no mishap.

By this and other experiences I have learned some things, and they are quite in line with the points made by friend Green. In addition I will add a few other points. The first is, I would always have a rope attached to the draw-pin of the doubletree for emergency. Second, before putting the hives on the wagon, carefully inspect the wire cloth that closes the entrances. The time to fix up leaky entrances is *before* the hives are put on the wagon. Third, I would have a smoker already well lighted. In addition to this I would have two or three paddles. I would also have a wet rag, large enough in size to cover up an entrance. If you find the bees are escaping, tuck this around the edge of the wire cloth, where they are coming out, and then bring your smoker to bear. Fourth, I would have some extra rope, a hammer, and some nails; any or all of these we may need. We can not take too much precaution, for a single bee may cause a runaway and the almost complete demolition of all the hives on the wagon. Fifth, so far as practicable, draw the bees home by moonlight. After dark, even if some of the bees do escape from leaky entrances they will not be likely to sting horses or men. Experience shows this to be emphatically so in my experience. There is another advantage in night hauling: it is cool, and combs will not be liable to break down, and then on arriving home the entrance screens can be torn off and thus avoid that angry lot of bees during the day. By morning all will be quiet. One of our horses was very much afraid of bees, while the other would take four or five stings without making very much fuss. If you have a horse not much afraid of stings, you are lucky.

I have gone into details because the facts are fresh on my mind, and because they may come in good use to some who are about to move their bees home for winter.] E. R.

FIXED FRAMES.

AFTER TRYING SEVERAL KINDS, SETTLES UPON A CLOSED-END HANGING FRAME WITH A BEE-SPACE BACK OF THE END-BARS.

I see Ernest has made the request that users of fixed frames give in their testimony, so here is mine.

Some twenty years ago I purchased the first fixed-frame hive I ever saw. It was called the "Hoosier" hive. The frames slid into notches, and were fixed and spaced in a very nearly permanent form. The hive contained a colony of bees at the time, and I removed the frames just once, then the combs and bees were transferred into L. frames without going through the bee-mashing ceremony of replacing them in those notches, and the hive went to the woodpile in a hurry; and, if I remember rightly, the criticisms regarding the hive and inventor were more forcible than polite, for this was before the days of the smoker, and the bees were hybrids of a very warlike tribe. This was experience No. 1.

The next season we made a lot of American hives for an out-apiary, frames with a close-fitting top-bar the entire length, and slots for the bees to go up into the surplus apartment cut in them, and a movable side. This was better, but had many objections, and was discarded. Thus closed experience No. 2.

The next year I had charge of still another out-apiary, mostly on frames very much like the Van Deusen, only the corners were worked solid from the top-bar. This, the "Union" bee-hive, was so arranged that the frames could not be removed except from the side, or, rather, from the rear, and was a very inconvenient arrangement indeed in many respects — in fact, about *all* respects. This was experience No. 3, and I was then satisfied that father Langstroth was right, so I built my hives two-story, and confined my operations to the production of extracted honey with the L. frame.

A few years ago I changed to a frame a foot square, a swinging frame, being satisfied that, for the production of extracted honey and for winter, it was superior to a shallow frame as well as for brood-rearing.

METHOD OF GETTING BEES OUT OF EXTRACTING-CASES.

But here I ran against a snag with the Langstroth frame. I found it an easy matter, usually, to smoke the bees down from the upper story, and then pile up as many stories on top of one another as I conveniently could, and place a board on top of the pile, with a wire cone permitting the bees to leave the combs. They were then wheeled into the honey-house and extracted.

BEE-ESCAPE.

This cone was made from a patent fly-trap, and I sent a description of it to the old *Beekeepers' Magazine*, away back in the '70's; but for some reason it was not illustrated. But when I tried this same way with my deep frames I did not succeed as well, on account of the greater depth of frame.

THE FIXED FRAME I NOW USE.

I then, to remedy this defect, constructed a frame nearly six inches deep, twelve inches long, with ⅜ top and bottom bars and uprights, 1⅜ wide, with usual bee-space between upright (or end-bar) and hive, top-bars resting in a rabbet, dummy at side, and set-screws to crowd all frames up close. At the side opposite the dummy the frames rest against a pair of little strips to keep them away from the side of the hive and preserve the correct spacing.

I made a large number of these little cases; and although, from past experience, I was very much opposed to fixed frames, and believed them impractical, I am more than pleased with the result of two seasons' use, and shall try them next year as a brood-frame. I can handle them by cases, pairs, and trios, with ease, and have no difficulty except with the comb-building nuisance between the cases, which will happen to a greater or lesser extent with any hive I have ever used yet. I also left the screws out of nearly half of these cases, and fastened the dummy with a key; but it does not fill the bill with me, as it is too slow and uncertain. My hive is, in many respects, like your Dovetailed hive—cleated cover, and bee-spaced bottom-board; and all cases, supers, etc., interchangeable. When I adopted the closed-end frame I did not intend to try to handle them except by cases, and expect to handle them mostly in that way; but in my limited experience with this frame I find no trouble if you only screw your frames up close and prevent the bees from sticking glue between the edges of the uprights, or end-bars. If usual care is taken in this there will be but little trouble; or such, at least, has been my experience, and I am surprised at the ease and rapidity with which I have been able to handle these little combs, and very often with less trouble than the larger ones. But I want a bee-space between the end of the frame and hive so far; and in case I wish to do away with it I can easily nail a thin board in at each end. J. A. NASH.

Monroe, Ia., Aug. 25, 1891.

[You are correct in saying that fixed frames should be wedged or screwed tight. This is necessary in order to keep the bees from sticking the frames together with propolis. On some accounts I should prefer the wood screws. One objection to wedges inside of the hive is, that bees propolize them fast; and it sometimes, in the case of hybrids, takes no small amount of pulling to get it loose. The screws have the advantage, also, that more power may be applied.—I think you are also right in deciding that there should be a bee-space between the end-bars and the hive. I once, you may remember, thought that no bee-space would work better; but practice does not warrant this conclusion.] E. R.

A FRIEND MALIGNED.

PROF. COOK STANDS UP IN DEFENSE.

Mr. J. S. Whittenburg writes as follows of an insect of which he desires the name:

"I send you a vicious insect which I have just killed. I could smell (?) the poison all over the house. What is the name of the thing? I shall call it the McKinley wasp until I hear from you. I tore off its head, and five minutes afterward it was still crawling around trying to spear things with its four-inch lance."

Mr. W. is much mistaken, as this is one of our largest ichneumon flies, and one of our best friends. The name is *Thalessa lunator*. It is a large wasp-like insect with a very long ovipositor, which it uses to bore into trees, that it may lay its eggs on or near the borers that are tunneling and destroying the trees. Thus this insect is very useful in destroying borers that otherwise would destroy our fine maples. Thus the insect is not only our friend, but is as harmless and safe to handle as a house-fly. I have handled them freely, many times, and never smelled the poison or received harm. This insect belongs to a very useful family of insects—the *Ichneumonidæ*—all of which are parasites, and our very good friends, as they live on our insect enemies, which they destroy by the millions. They lay their eggs in, on, or near some grub, or caterpillar; and as the eggs hatch, the young of the ichneumon feeds on the luckless grub, etc.; and so, as we attempt to rear these latter, we rear the ichneumon instead. Were it not for these friends, agriculture, horticulture, etc., would be losing pursuits. All of these have large flat abdomens, and long ovipositors, and so are easily known. The ovipositor of this one is four inches long. This species, which is beautifully marked with yellow and brown, is very much like another species, *Thalessa atrata*, in form and size, but the latter is black. As these bore into trees they sometimes get their long auger fast. I have caught them thus entrapped several times.

Mr. W. calls this the McKinley wasp, and an enemy, or vicious thing. Is this suggestive that the "McKinley bill," so often defamed, may also prove our very good and helpful friend? Many very wise and good men think it looks that way. We shall all see, as we are likely to have several years' trial.

Agricultural College, Mich. A. J. COOK.

SOME HINTS ABOUT CONVENTIONS.

DR. MILLER MAKES SOME EXCELLENT POINTS.

The secretary of a bee-keepers' society has asked me for some suggestions as to a program, and I will commence beyond the program.

One of the worst things is to have too large a place of meeting. In a large room it is difficult to hear all that is said, and more difference than might be supposed is caused by this. If effort must be made to catch all that is said, and even then some words be lost, the most zealous seeker after bee-truth becomes weary, and the meeting loses much of its interest. Better have a room so small that it is somewhat crowded than to have it uncomfortably large. And that word "uncomfortably" reminds me that a large room is likely to be uncomfortably cool during the first session. More than once I have entered the place of meeting, waiting for the opening of the first session, the room so cold that it was not even comfortable with an overcoat on, a score of people perhaps scattered in different parts of the room, looking at one another in a very formal manner, and I couldn't help feeling a little homesick. Put the same twenty people into a room twelve feet square, with a good warm fire, and how soon they would begin to talk and get acquainted! Make sure that it is *somebody's* business to have the room comfortable at the first session. And that doesn't mean merely that it shall be *warm* enough. The average porter on a railway car makes it hot for you, but you wish he wouldn't. It is of equal importance that the air be fit to breathe. A close, stifling atmosphere will smother the interest out of any convention.

In the larger places it is often possible to have the meetings in one of the rooms of a hotel. Indeed, I think it might be a good plan, even in a small place. It commends itself on the score of economy, comfort, and convenience.

There is a general tendency, in bee-keepers' conventions, to get disorderly in a certain way. A certain topic is up, perhaps the size of a hive, and, first thing you know, some one is talking about a new honey-plant. With the right one in control, I am inclined to believe that this sort of disorder is a good thing. Often very valuable points are brought out, and the discussion becomes intensely interesting, when the digression has gone so far as to leave entirely out of sight the topic which, according to the program, should be under discussion. It requires no little wisdom on the part of the presiding officer, however, to make the right kind of steering so that the whole concern does not become hopelessly demoralized. I do not know that it would be as safe with any other assemblage as with bee-keepers. But somehow they are such a good-natured lot, and withal so unselfishly eager to learn the truth, in spite of their general prejudices in favor of the things of their own "git up," that, no matter how far they are allowed to stray, whenever the lines are drawn on them they will good naturedly pull back into the track.

The fact is, the best, the most useful meetings are likely to be those where there is very little formality; and instead of being a formal meeting, it falls more into the character of a general conversation, only so that the line be strictly drawn not to allow more than one to speak at a time. It often helps greatly to have questions asked of the one who has the floor, and it is a good plan to allow any one in the room to interrupt with a question, whenever it will bring out more clearly something that may be omitted by the one who has the floor. And I would not require the one asking such questions to rise or to address the chair. But the president must be closely on the watch; and whenever there is appearance of straying that brings no profit, he should bring the speakers back to the subject; and if there appears the least inclination to fall into offensive personalities, he should bring every one up sharply into parliamentary order.

It often happens that private conversations bring out items of interest—perhaps on the way to the convention, perhaps between the sessions. In this way facts may be had that would never be sent to any paper for publication. Possibly the one who has the facts does not himself recognize their value, or possibly he could not write them out so as to be understood. Indeed, there are cases in which nothing less than a series of questions will succeed. In such cases it is evident that what is valuable to the individual may be valuable to all, and it would be foolish to pass such things by because they had not been formally named on the program. But how shall a private member, who has picked up some item in the way I have indicated, manage to have it brought up before the convention? Just here is where the query-box comes in. A question can be asked about the item, or the president may be requested to ask Mr. Smith how it is that he managed his 125 colonies for comb honey without having a single swarm.

So you see there must be allowance made for these things, about which you can know nothing beforehand, and time left for them. Plenty of time certainly should be left for the query-box. One way in which the question-box is valuable is in giving each one the opportunity to ask specifically about the things he wants to know. It is true, that some one may ask some such question as, "Do the drones ever lay eggs?" but I have never seen any particular harm come from it, and such questions need take very little time for answer. But I have made my introduction so long that I must leave the program for another time. C. C. MILLER.

Marengo, Illinois.

[I indorse particularly what you say in regard to conventions being held in a room adapted to the number in attendence. Once or twice our State and National associations have met in the chamber of the House of Representatives in the State capitol at Columbus, Ohio. The hundred or two hundred bee-keepers assembled seemed like a small squad huddled together in this immense hall. It was very difficult for certain speakers to be heard; and such rooms, although elegant in their appointments, are decidedly undesirable. I remember distinctly the difficulty I had in taking notes; and the report of several important things had to be omitted just because there was a word or two I could not catch, thus marring the whole.

I somewhat question whether it is wise to let, here and there, bee-keepers digress from the subject under discussion. Our presidents do not always discriminate between that which is valuable and that which is not; and again, we do not all hold the right opinions on the useless and useful. You say, have good presidents who will discriminate. That is not always possible, considering the favoritism we have for our special friends in electing them to the position. A very successful bee-keeper might make a very poor president, and a very poor judge of good matter for discussion. You see, if a president discriminates in one case and not in another, the feelings of some will be hurt. Why not treat all alike, and then leave valuable points, when they wedge in, to be reserved by the president, either for the question-box or the time when some subject will be discussed under a head where it properly belongs. We who report the proceedings of the bee-conventions must either give the report verbatim, giving all the connecting links, or else omit the irrelevant. It looks bad in a printed report to see, after a valuable paper on Controlling Swarms, the matter of comb foundation, wintering in cellars, and a whole lot of other things lugged in after the discussion, with here and there a sprinkling of the real matter under discussion. The *reader* can not, in the necessarily brief report, see the connecting links that brought in these other points. It is the *report* that does the greatest general good, and this report should be orderly and logical, and should show evidences that bee-keepers can meet together and discuss a subject without running off on a tangent.

I agree with you heartily, that there should not be too much formality or parlimentary stiffness. It is better to address the chair when arising to speak, especially if many are seeking the floor; but for ordinary questions or interjected sentences sprinkled in here and there, the formality of addressing the chair would spoil the continuity of the connecting links.

Yes, sir, there should be a question-box in every program, and plenty of space allotted for it. Some of the liveliest and most valuable discussions proceed from this, and right here is the place to bring in the valuable points that were or would be irrelevant elsewhere.] E. R.

A BEE-HUNT WITH A SEQUEL.

CONCLUDED FROM PAGE 690.

The next morning after the bee-hunt I was hard at work under a large oak, in front of the apiary. Here I have my carpenter shop, blacksmith shop, tin-shop, paint-shop, etc. They are so located that I can see every hive in the apiary, as the ground rolls gently upward. These various shops are all in one large room, which has neither sides, ends, nor roof. I find that this kind of building is the least expensive of any, and I have the advantage of being able to see all around me. About 9 o'clock John came over, passed the house, and came on up to my bench. His brow was dark, and his countenance was lit up with fury. His great fist was clenched so tight that I could see the white ring around the edge of his forefinger and thumb. There was not a single soul on the ranch that day but myself.

"Good morning, John," said I in a hearty voice.

"You'll find it a'in't any good mornin' for you afore I'm done with you, for I'm goin' to mash you."

I am no coward. I have stood at the cannon's mouth—when nobody else was near—all alone. I am brave—as brave as the boy on the burning deck—brave as a sheep; but when I saw that great clenched fist, as big as one of the boulders with which they pave the streets of Native City, I was scared—scared all over. In the midst of my terror (I was only a little bit scared) I thought of Solomon saying, "A soft answer turneth away wrath."

Here let me digress from my narrative to say a word to the young men of the rising generation. You may not know, young man, that I have been a great benefactor to my fellow-men. At one time I donated fifty millions of dollars for the good of mankind; at another time, thirty millions; and at still another time, twenty millions more—aggregating one hundred millions of dollars. I here donate to you ten millions more—in good, clean, cold-cut advice. This is the same form in which I gave all this immense sum of money! Here it is—listen to Solomon. He will be "a lamp to your feet and a light to your path." Put one of his proverbs in your pocket every morning. It will be better than a pistol to ward off danger, and protect you from harm. Chew it through the day instead of tobacco. Drink in its wisdom all day long, instead of guzzling beer. The dainty little letter that you carry next your heart is from the dearest girl in all the world. Just think of it! When she fumbles in your pockets—just for fun—and finds a proverb of Solomon instead of a chunk of tobacco, how her heart will roll out to you! When you "pop the question," that girl—with her Saratoga trunk packed full of new clothes—will hand herself over to you without any express charges or cash in advance. Listen to Solomon: "A soft answer turneth away wrath." So I said very softly to John, "Did your wife—did Martha send you over to smash me?"

"No, she didn't; and she would cry her eyes out if she knew it. I could no more hit you afore that woman than I could fly. But I've got you here, and I'll settle the case here. You had it made up aforehand with that colt and them bees to kick up that fuss. A feller that can go into a hive of bees and rake 'em round with his hands just as he pleases can do any thing with 'em. I don't know how you got round that colt, but you done it, and I'm goin' to pay you for it. I don't believe in no Prof. Cook, nor no Rutt. I believe you made up the hull thing aforehand to git us into trouble."

John made a grab for me, but I eluded him.

"John, just one word more. Do you remember how often I used to go over to your house and romp with the children—with little Nellie?"

I saw the great fist unclasp, and John's hand fell limp at his side. The tears were in his eyes. Little Nellie was then sleeping peacefully beneath the grass in the cemetery.

"Do you remember, John, how I used to spend an hour at a time in dancing her round the room, and she would lay her dear little curly head on my cheek and say, 'Mo-a! mo-a!' meaning more?" I had found the "soft answer that turneth away wrath," for the tears were now streaming down John's cheeks.

"Now, John, I have no defense to make. Strike! Strike, man! what's the matter with you?"

"What!" he cried, with his arms extended toward me, "strike a man that loved my little darling?—strike a man that nursed that dear head upon his bosom?—strike a man that kissed the dear lips that are now cold and silent in the grave? I was a fool—a beast—a brute. May God forgive me—I'll never forgive myself."

He grasped my hand, which I had reached out to him. "Come," he said, "you'll do no more work to-day. We'll go over and tell Martha, and I'll beg her pardon, and you'll be there to intercede for me."

O Solomon, Solomon! You were a great man—a wise counselor, a mighty king, a prophet! When you added that proverb to the brliiant galaxy of other sayings with which your name will ever be intimately and sacredly associated, you gave a star to the world that will never set—a jewel that will never be lost. You got me out of that scrape, without a broken bone or the loss of a single drop of blood. I was only a little bit scared, anyhow.

Sumac, Cal. J. P. Israel.

LADIES' CONVERSAZIONE.

REMINISCENCES OF THE WAR.

OVER SOME OF THE OLD BATTLE-GROUNDS.

We are just home from another Southern trip. Atlanta (nearly ruined in our late war) was our first stopping-place. From the Kimball House, where we stayed, we could see the State capitol building, a beautiful structure of Georgia granite and marble from the quarries near Atlanta. We were inside, but did not go to the top. Many nice churches are seen; and no one would think, to see the city now, that, at the close of the war, but four business houses were left standing; but so we were told.

We next stopped in Chattanooga, visited the National Cemetery, noticed Ohio's tribute to the memory of the "Andrews Raiders," which is a monument with a fac-simile in copper bronze of the old engine "General" above, and the names of the soldiers, twenty in number, who made the raid in 1862, underneath.

On Chicamauga battlefield is yet to be seen Bloody Pond, a small body of water where men and horses would crawl, wounded and dying, to quench their thirst, even after dead bodies had fallen into it. Three miles further on we find the wonderful Crawfish Spring. Oh such a depth of clear pure water, away down fifteen feet, and nothing to mar its beauty! From the row-boat we could look down and see wonderful mosses growing high, but away below us, and out of reach. A little pamphlet says: "This lake is two miles long, and is formed from the largest mountain spring in the world —sixty million gallons of the purest water flowing through it every twenty-four hours." We shall not forget Crawfish Springs any sooner than we will the hot springs of Arkansas, or Niagara.

In sight of this spring is Park Hotel, where we were introduced to General J. B. Wilder (of Wilder's brigade), who told us of many trying scenes during the battles in the surrounding country, and showed us where General Rosecrans had headquarters—a pretty place just back of this spring. After getting back to Chattanooga we took the inclined plane up Cameron Hill and back, and were in the old prison building where Confederate and Federal soldiers were confined, according to which side had possession of the city. We were under obligations to Mr. Piper, Rogers Bros., and their families, for a large amount of information about the country during the war, and our very pleasant time during our stay in Chattanooga.

A wonderful ride on the cars, fourteen miles up the mountain, brings us to Lookout Inn, a large hotel containing 650 rooms, 2200 feet above sea-level — a real pleasure-resort for people from Southern cities; and this pretty place is where the railroad traveling passenger agents of the United States and Canada held their annual meeting for 1891. While the men were holding a business meeting we followed a path from the hotel a short distance, leading to Point Park. Going through to the end we look down off the projecting rocks, and see another hotel, but no way to get to it. A path back a little way shows a rope tied round a stump, and dangling down over the rocks out of sight. Two of us decided to go down, and hung to the rope and let ourselves go, thinking it would bring us on a level with the hotel on the mountain-side; but we followed the path around and over the rocks, and soon came to another rope and old wooden ladder; but it landed us safe at the bottom. Then it commenced to rain; but we soon got to the hotel we had seen from the rocks above; and from the verandas we could see, in the trees below, chestnuts, redbirds flying around, and here we get the best view of Moccasin Bend, in the river below, and a good view of the city. But we were glad to get into a narrow-gauge car and ride, although the conductor says he can not take us to the inn, or in sight of it; but the remaining walk up the mountain is a short one, and we enjoy it and are soon safe in our room.

The next day a party of five went down on to this narrow-gauge track around the mountain, over trestlework, trees, rocks, and shrubbery, away below us, and followed on to the same hotel; but a railroad man was our pilot, so we did not fear a train coming. No wagon-road, no foot-path, no boat, no safe way to get there, only in cars, and—well, it makes me think of the dungeon at Fort Snelling; for isn't it prison-like to be where we can not walk away safely? Again we ride back, and climb the remainder of the mountain near where General Hooker's army came up, we are told. Not far from the inn is a war-relic museum. The proprietor kindly explained things of interest to us, and it is worth visiting. From the top of the inn there is nothing higher than we are in any direction. It is said we can see into seven different States here. One night we watched the sun set from the tower. A beautiful souvenir of wild flowers, gathered from the grounds whereon were fought the battles of Lookout Mountain, Missionary Ridge, and Chicamauga, was presented us before leaving; and now we bid our Southern friends good-by, and expect next to visit Mammoth Cave, Ky.

Medina, O. MRS. HERMAN HOLMES.

[We would explain that Mrs. Holmes is a sister of A. I. Root, and has on a former occasion given an account of another trip over the L. & N., of which her husband is a general passenger agent.]

MISS WILSON AND THE RECORD-BOOK, AGAIN.

THAT HUBBARD SECTION-PRESS, FOR WOMEN.

Now, see here, Mr. Root; I didn't think that of you. We just do lug about our big book, the same as ever. It is one of our biggest comforts. But the little memoranda on the sections are comforts too. The one has nothing to do with the other. You say, "Why not have a slate on top of the hive, or hanging on the hive, instead of being obliged to raise the cover, and then make a section unsalable by unsightly figuring?" But, Mr. Root, we have to raise the cover to see what the bees are doing, and we never care to see the memorandum unless we do uncover the super, while the book keeps the record of the colony, that we may want to see when we are miles away. It seems to me it is much more convenient and safe to have the memorandum on the section than on a slate. I should very much object to the figuring on the sections, if it had to stay there permanently. But just take a damp cloth, rub it over a cake of scourine a few times, and give your sections a few vigorous rubs, and see how like magic your pencil-marks will disappear. By the way, scourine is a capital thing to take propolis off your fingers.

If Mrs. E. M. Crossman will try Manum's swarm-catcher I think she will find it a great help in hiving her swarms. We clip our queens' wings, and only occasionally have to bother with swarms having virgin queens, but at such times we have found the catcher very handy.

Our bees have given us no surplus honey

since linden, although they have plenty of cucumbers to work on, and several acres of buckwheat are in easy reach of the Hastings apiary. I think a large part of our honey this year is linden. The white clover never was more abundant, the fields and the roadsides being perfectly white with it, and we had every prospect of a very large crop. Still, the honey came in quite slowly until linden bloom, when for a week or ten days the bees did a rushing business, then suddenly stopped. I really think we have very little clover honey. When I ask Dr. Miller about it, he says, "I don't know." Heretofore we have always thought there was so little linden that we have never counted much on it. I think there must be more of it than we know of. All the trees we saw were perfectly crowded with blossoms.

We feel very thankful that we have not been troubled with honey-dew.

Are we never to have any more large crops of honey from white clover? It looks a little that way; but, why?

I wonder how many of the ladies have a Hubbard section-press. It is splendid—just fun to feed in the pieces and see them come out nice, square sections, requiring very little outlay of strength. Charlie has nearly always made our sections, and I confess I rather dreaded the thought of having them to make this year. Dr. Miller sent for a Hubbard press. I had very little faith in its being a very great help, and was simply delighted with it on first trial. I quite enjoy making sections now. If any of the ladies have sections to make, and haven't a press, send for one right away. Don't you make another one by hand.

How many nice things we do have to make our work easy! I wish some one would invent a machine for scraping sections and getting them all ready for market—one that would work as nicely and easily as that section-press does.

Dr. Miller need not laugh any more at the ladies for discussing gloves and aprons. We have converted *him* to wearing aprons. When he gets to wearing gloves, I'll report.

Marengo, Ill. EMMA WILSON.

["We" explained to A. I. R., that he in his footnote had misunderstood you, and that you had not discarded the get-lossable record-book. "Let it be as it is. It will do no harm," said he, "for it will draw her out a little more." And it has. Mr. J. F. McIntyre will have a very interesting article in our next, in its defense. Yes, that section-press is a very handy and satisfactory machine. The one who could not make it work, or would not be delighted with it, must be very stupid or very hard to please.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SOME QUEENS; EXPERIMENTS AT THE AGRICULTURAL COLLEGE.

Without doubt the chilling of a queen, as told by Mr. Anderson, page 669, would in most cases destroy the spermatozoa; yet last spring, while removing the bees from the cellar here, I came upon a colony that was, as I supposed, dead, and I set it to one side. The next day I found the queen, while cleaning out the dead bees, and, to my surprise, she showed signs of life. I brought her in by the fire, got a cage with some bees, and in an hour she was as lively as if she had no memories of how near she had been to a death by freezing. The next day I introduced her to a queenless colony, and today she is at the head of a strong colony of her own bees.

We have also a queen, very diminutive in size, that produces bees, many of which are much smaller than the normal. She was evidently reared under unfavorable circumstances, as she has laid only sparingly, and her brood is, much of it, drone brood. Her extremely small size, not only of abdomen but of thorax and head, makes her interesting, especially as she transmits this peculiarity to her offspring.

We also have a queen from C. W. Costellow, of Maine, from a mother whose colony perished of *bacillus depilis*, as E. R. Root would have us say. She is structurally imperfect, as both anterior and posterior tarsi on one side are missing. Her bees are healthy, and a queen reared from her does not give the disease to her bees. J. H. LARRABEE.

Agricultural College, Mich., Aug. 20.

[These experiments are interesting and valuable, and we hope Mr. Larrabee will tell us about his work oftener. This will greatly increase the usefulness of the apicultural station at the Michigan Agricultural College.]

TO THE BEE-KEEPERS OF FLORIDA.

I am desirous of securing complete and reliable statistics of our industry for the past season. Will you kindly assist me in this work by forwarding me your name and address, also those of your neighbor bee-keepers, for a question-blank, to be filled out and returned? Blanks are printed on postal cards this year, for your convenience in returning. All responding will receive a copy of the complete report when published. I shall try to have it out by the 1st of November. A report of this kind will be very valuable to the fraternity, therefore I earnestly ask your assistance in making it complete. A. F. BROWN.

Huntington, Fla., Aug. 25.

ANOTHER SWARM-CATCHER A LA GOLDEN.

On page 663, Aug. 15, you ask for reports of those who have used swarm-catchers. I have one of my own invention, used in an apiary of 100 colonies, and I like it very much. I would not be without one or more of them. Mine is a little different from Mrs. Golden's. I use wire cloth, flat bottom, with tin slide, to fasten them in. I can stand it on end any place in the apiary.

I do not care if I do not get *all* of the swarm in. They will alight on the outside of the catcher; but I nearly always get them in. Then I can set it while catching, and leave to attend to others, if there are any to look after. They do not cling to the smooth bottom-board as they do to the wire cloth.

Cowden, Ill., Aug. 23. A. W. SPRACKLEN.

SAD DEATH OF A BEE-KEEPER.

On the 26th of July my dear brother Willy, aged 26½ years, was drowned while bathing in the sea. A last effort by myself, swimming with him, was in vain. He warned me to go ashore to my family. I had only just time to arrive. Two sailors got hold of me, but Willy was lost. He was a bee-keeper since 1883, and was one of us five brothers (all bee-keepers), wide-awake in the business. Together with an elder brother he owned 240 hives, and got something above 20,000 lbs. of extracted honey. He came here from the Philistine plain to rest from his labors, as he put it, and he rests indeed. He departed this life in peace with everybody, widely beloved and deeply regretted by his friends and family. His career as a bee-keeper was short but brilliant. He now rests in peace. His sorrowing brother,

PH. J. BALDENSPERGER.

Jaffa, Syria, Aug. 10.

STANDING CLOSED FRAMES.

I have put all my new swarms this year on closed-end frames, and I am so well pleased that I will never put any more bees on the old swinging frames or any other frame that works in a tight box. I have handled bees for thirty years, and I am sure I never had any frame that killed fewer bees.

I put some hives in the sun and some in the shade, and left the winter cases on in the sun, and left them off in the shade. One comb melted down in the shade, while those in the sun have not. I used full sheets of foundation, and I have combs exactly alike, and are interchangeable without any trouble. Fixed distances for me from now on. J. F. MORROW.

Stromsburg, Neb.

[Closed-end frames are all right when made to *stand* on a bottom-board, *a la* Quinby and Hetherington; but it is questionable whether they will work in a closely fitting hive; i. e., no bee-space back of the end-bars. See page 699, Sept. 1st issue. We should rather account for the comb melting down in a shaded hive to some defect in putting in the foundation, or to small entrances.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LIKE TO RAISE CROPS.

WHAT WE CAN PLANT DURING THE LAST OF SEPTEMBER; BY A. I. ROOT.

Well, we can plant spinach; and as it is a difficult matter to get good strong heads, just before the frost hinders them from running up to seed I would advise making several plantings. Last winter and spring we could have sold barrels and barrels of spinach at tremendous prices had we only planted enough of it. During severe freezing weather without snow, it is very liable to be injured during the spring; but we have never succeeded very well with any kind of mulching. Evergreen boughs, where they can be procured, have been highly recommended, and I should think they would be about the thing. Perhaps some coarse mulching like tomato-vines, bean-stalks, etc., might answer nearly as well. The idea is, to get something that will make the snow bank around the plants, and keep them frozen, or, if you choose, to prevent so much freezing and thawing. The American Pearl onion-sets can also be planted any time this month. By the way, it seems a little singular that no seedsmen besides Johnson & Stokes have discovered that many kinds of onion-sets may be planted out in the fall. We have also been told through our agricultural papers for years, that onion-sets of the hardier kinds can be put out in the fall as well as in the spring. I suspect it must be a matter largely of soil and locality. *Egyptian* onion-sets, of course, succeed everywhere. In fact, I never heard of a failure. And, by the way, as we are sold out, perhaps it would be a good thing for somebody to advertise both top sets and bottom sets. Oh, yes! there is one more thing that we can sow in September, October, and November, or, in fact, any time in the fall when the ground is not frozen. It is winter rye. And I think it will pay market-gardeners exceedingly well to get in rye just as fast as they can get off a crop of any kind. It will hold the ground together, prevent washing, prevent the manure from getting away; and the ground will be dry quicker, and be sooner ready to plow, where your rye is than where it is left bare. Add to all this the value of the fertilizing material of a heavy crop of rye plowed under. In the spring, plow the rye under just as fast as you need the ground, and *no faster*.

SPINACH FOR POULTRY; A CAUTION AND A SUGGESTION.

If you keep poultry, and they find your spinach, good-by to at least a portion of it. And this reminds me that, if you have vacant ground near their quarters, it will pay well to sow a good long strip purposely for them. Then give them a strip of rye, and if you have any old cabbage seed you do not care much for, sow that for them, and the same with lettuce. A good generous feed of lettuce at a time when the fowls have been somewhat short of green food will often of *itself* start them to laying briskly.

CABBAGE, LETTUCE, CAULIFLOWER, ETC., FOR COLD-FRAMES.

Now is the time to sow seeds of the above to get plants to put out in your cold-frames a month later. By the way, if you can afford the sash and the handling of it, it is the nicest way in the world to raise spinach and be sure that the frost does not injure it. The rest of this space I have left for one of our gardeners to fill, as the doctor does not allow me to dictate or write much.

OUR GARDEN, SEPT. 10.

Come down across the creek and railroad, and see the strawberry garden. The long rows, about three feet wide, are a dense mass of foliage; the leaves of the old plants in the middle a dark brown; the young plants on the sides bright green, and all just reveling in the soft rich soil. It is enough to arouse an enthusiastic love for nature in any one who can see beauty at all. Who can help admiring the bright beautiful things, fresh from the Father's hand? The American Pearl onions are down here too. They are just coming up; and the long straight rows reach from the west fence away down to the old railroad. The little white throats, showing above the dark soil and under the green tops, assure us that we can depend on them to help furnish us with *money*, and that means *work* to keep all the boys busy. The blackberries on the side hill don't seem to "weary in well-doing," though their time for fruit is long past. While there are not enough to send many of them on "the wagon," we do get enough to delight Mr. Root's eyes and help make him hungry. Then down in the corner by the railroad is the tomato-patch where we are testing the different kinds that the many friends have sent us to try.

Henderson's new No. 400 that has no name yet is the only one which has attracted any attention so far. Its color is pink, like the old Mikado, and it is an immensely large tomato. I picked one this afternoon that weighed a pound and eleven ounces. This was not one of the largest by any means; but it was one of the smoothest and most *meaty*, or thickest—that is, through the tomato from the stem to the blossom end. It is quite solid, also, but has more seeds than the Ignotum, and does not ripen well down around the stem.

Our people think that the Shoepeg corn is about the richest and best corn we have ever had. It is not very early, and does not have very large ears; but there are two, three, and sometimes four of them on every stalk, even when the stalks are only three or four inches apart in the row. We have tried the new scheme of cutting off the tassels, as fast as they appear, on every other row of our sweet corn this year; and, so far as it is possible to judge from one year's experience, it pays well. There are many more *fully* developed ears on the trimmed rows than on those that are not.

We are selling the first of the Spanish King onions on the wagon these days. The boys get five cents a pound for them, and they weigh from one to two pounds apiece—five or ten cents for an onion raised right here at home!

Well, friends, we have not been all over the place, but I guess this is enough so that you will know we are here and at your service.

OUR HOMES.

He that is faithful in that which is least is faithful also in much.—LUKE 16:10.

Well, dear friends, here I am again, just where you found me before. I am free from fever, free from pain of any kind, and my mind seems more clear and vigorous that it has before for months. But our good friend the doctor is vehement in objecting to my dictating one of my usual Home and neighborly talks; therefore I have selected a chapter from a Sunday-school book that has recently interested me greatly. The title is "Cecil's Knight," published by Thomas Y. Crowell & Co., New York. Perhaps I had better explain to you that the good lady who takes such a prominent part in the story, and has so many proverbs and old sayings at her tongue's end, has been christened in her own neighborhood "Aunt Solomon." If the story is not by Uncle Amos it has his most emphatic indorsement, for it is a better story (in his opinion) than any thing he ever has written or ever will write in that line. I have taken the liberty of giving it a heading myself.

THE BOY WHO WAS DETERMINED TO HAVE AN EDUCATION, AND WHO WAS ANXIOUS AND WILLING TO WORK FOR IT.

"There's somebody knocking, Sophy! You will have to go to the door. If I go, whoever it is will stand there and talk till noon. I dare say it is a book-agent, or a man selling notions. It's 'in for a penny, in for a pound,' when they get hold of one. Tell 'em I've got every thing in the world that I want, and haven't a cent to buy any thing more, nor a minute to spend talking about it. There, he's knocking again! Don't stop to prink any longer, you foolish girl! What do you suppose he will care how you look? 'All horses are the same color to a blind man.' Do hurry!"

Sophy hurried, according to orders, while she was within reach of her mother's eyes; but she stopped on the stairs to pull down her sleeves, and glanced at the looking-glass, as she went through the sitting-room, to satisfy herself that her hair was in order.

"If it's a book-agent, I don't mind," she said to herself; "but if it's somebody else, I don't care to look like a Hottentot!"

"It's a boy who wants to see you," she said, coming back to her mother presently.

"I'll warrant it," Mrs. Marten said impatiently. "If ever I'm up to my elbows in suds, or have turned the house out of the windows for spring cleaning, some one is sure to call; but if I happen to be dressed up in my Sunday best, with nothing to do but to hold my hands, not even a tin-peddler comes near me. I'm sure I haven't a minute to waste on any boy to-day. What does he want of me? Why didn't you ask him? However, 'a short horse is soon curried.' I'll be back in two minutes. 'What the fool does in the end, the wise man does in the beginning.' Where did you leave your boy?"

"Standing at the south door. He wouldn't come in," Sophy said, getting upon a chair to take down a picture, and dusting it energetically.

Mrs. Marten had been putting down her sleeves while she talked, from force of habit, but she recollected that it was only a boy, before she untied her apron.

She found the south door closed, and her caller standing on the step outside. She gave him a nod by way of greeting, and waited for him to declare his business.

He looked at her; what he saw was a tall woman, with a sensible face, and a pair of keen eyes; she was dressed in a neat, dark print, which was carefully pinned up, and covered with a huge apron, while a brown barege veil was tied over her hair, as a substitute for a sweeping-cap. The ends of it floated out on each side of her head, as she stood in the breeze at the door, giving an odd suggestion of wings in the wrong place.

She looked at him; what she saw was a fairly well-grown, strongly built boy of fifteen, with black curly hair and bright eyes. He was neatly dressed as far as spotless cleanliness went; but her quick eyes noted that the sleeves of his worn jacket had been pieced out at the wrist, and patched at the elbow, and even a piece of cloth of a different shade had repaired some damage on one shoulder; while his trousers were too short, and the shoes had evidently seen their best days.

A glance had shown her these things, and in the same instant she summed up the items. "The amount of it is," she decided mentally, "he's as poor as Job's cat, but he's got a good mother. He's as tidy as can be, only he's grown out of every thing."

He lifted his straw hat respectfully.

"Good-morning, Mrs. Marten," he said. "My name is Louis Thorne. Last night I heard that you wanted some one to work for you, and I should like to get the place."

"You?" she said, in surprise. "Oh! I wanted a man."

"Well, I'm a *young* man!" he returned, pleasantly, seeming in no wise discouraged. "And I think I'm as strong as some older men are, and as tall as some others. Couldn't you forget my age—I am growing older every day!—and let me try?"

He straightened himself a little, to look as tall as possible, and his frank, pleasant manner spoke strongly for him.

"You may be as big, but I should be reminded soon enough that you are nothing but a boy," Mrs. Marten said, shaking her head. "You are strong enough, as far as that goes; but 'old heads don't grow on young shoulders,' and you would be a care instead of a help. There are boys enough about the house now. I should never be sure that Dandy had any thing to eat unless I looked in his manger."

"Only try me," Louis urged. "I'll promise you he shall always have his dinner before I have my own."

"Oh, there's no use talking," she said impatiently, thinking of her suspended work. "I'm sure I don't know what I'm wasting my time with you here for. I've got plenty else to do with every minute of it. I ought to have told you in the first place that, though I did say

I wanted to hire somebody a week ago. I've changed my mind since, and am going to do without. I might find an odd job for you now and then, if you don't get steady work," she added, noticing the shadow that fell over his bright face. "If you were only a girl now, you would be just what I want. Haven't you got a sister who wants work?"

"No, ma'am; Freda is sick," he said. "But I know how to do girls' work, Mrs. Marten! I really do. I have always helped my mother about the house, and she says sometimes that I am as good as a girl! She would give me a recommendation for housework, I know. Do let me try. I am sure I could do it."

"You ridiculous boy!" Mrs. Marten responded, laughing heartily. "A minute ago you were sure you could do a man's work, and now you think you can do a girl's. I should like to see you at it!"

"I shall be very glad to let you see me, if you will give me the chance," he said, joining in her laugh. "I don't pretend that I can sew, though I suppose I could learn to do that on a pinch. It can't be any thing very hard. But I know that I can sweep, and help about the washing, and cook some things; for I have often done it. I don't say that I like that kind of work, but I can do it, when I can't get the kind that I do like. Indeed, Mrs. Marten, I am in earnest," he said, growing grave again. "Since we moved here I have tried everywhere to get work, and I can't find any. This seems to be my last chance, and I want very much to get it, because my mother has no one but me to help her, and instead of helping I am only a burden. It seems a shame that a great strong fellow like me should not be able to support himself. So I will do any honest work. I don't care what it is."

"I believe you, my boy," Mrs. Marten said, with unwonted kindness. "But you don't realize how unpleasant this would be. It is vacation now; but school begins next week, and some of the Academy boys board with me. You would not want to do such work after they came. You don't know how they would torment you."

"But I should do it all the same, whether I wanted to or not," he returned. "I've learned that lesson. If the boys want to amuse themselves, I suppose they can; but it will be an old story before long, and I shan't let them keep me from any work I can get. I will do *any thing*, except to steal or to beg."

Mrs. Marten wavered a little. Thrift hinted that the combination of man-and-maid-servant, though unusual, would be very convenient; compassion whispered that he needed the place; her womanly nature was attracted by his frank speech and pleasant face, no less than by his resolute spirit. He saw her hesitation, and pressed his advantage.

"Suppose you were to take me on trial for a day or two," he suggested. "Then you could tell whether I was likely to be worth my salt."

"Well," she said at last, "it's a queer thing to do, but I may be sorry if I don't do it. 'Some refuse roast meat, and afterward long for the smoke of it.' I believe I will try you as you say. What wages do you want?"

"Something to eat, and whatever you think I earn," he answered.

"Well, that's fair," she said. "'When two ride the same horse one must ride behind:' but if I am both buyer and seller, I'll see that you are not cheated. When will you come?"

"Oh! I *have* come," he said gayly. His spirits had gone up with a bound. "I can stay now if you like. Mother will know that I have found work."

"Very well. Then come upstairs," she said, pleased with his promptness. "We are cleaning house, and I can't waste any more time, if I am going to get through before those boys come back again."

He followed her upstairs, and she presented him to the much-astonished Sophy.

"Here's Bridget's successor," she said. "I hope he will be an improvement on her. There's room enough for it. Oh, you have got all the books and pictures out and cleared the room. That's a good beginning. Where's the tack-hammer? This carpet is to come up, Louis."

He set to work at once, drew out the tacks, folded the carpet, carried it into the yard, and began cleaning it in a most satisfactory way. Sophy seized the opportunity of his absence to shower questions about him upon her mother, who was quite unable to answer most of them.

"But I never heard of such a thing!" Sophy said, when she had learned all she could. "He only thinks of the work; and I dare say he can do that, for if his face tells the truth, he has ten times Bridget's sense; but I don't believe he has counted on the rest of it. When Jim Burton finds out that he is doing girl's work, he won't give him much peace. I can't say that I should want to stand in his shoes!"

"Well, 'a laugh breaks no bones,'" Mrs. Marten said, with much composure. "I guess we won't disturb ourselves about it. 'Our worst misfortunes are those that never happen.' Louis looks wide awake, and I have an impression that he can take care of himself. I told him about the boys, but he did not seem frightened about them. I shan't be surprised if he gives Jim Burton as good as he sends. I've taken a fancy to him."

"But you know nothing about him," Sophy said.

"Not a thing," her mother assented, "except just what my own eyes and ears have told me. I shall trust their testimony for the present. The boy's face speaks for him. If he doesn't suit us we shall be no worse off than we were before, and he may be real good help. 'The proof of the pudding is in the eating.'"

"He has a pleasant face," Sophy admitted, looking out of the window which gave a view of the yard, and the new help at his work, "and I believe he is smart. Do see how he goes at that carpet! Doesn't he make the dust fly! If he isn't 'striking twelve' now, he'll be a treasure."

"Mustn't expect too much," Mrs. Marten said. "He's nothing but a boy, and I don't suppose he is perfect. 'He who wants a horse without a fault may go afoot.' But I like the spirit he showed; he was ready to take what he could get, if he could not get what he liked. That's the kind of boy that succeeds in the world. He can try it a while, and I'll be on the lookout to find a place with more suitable work for him. But I wish those boys would just let him alone."

"They won't then," Sophy said, shaking her head. "It will be nuts to them, you may depend."

"And if I try to caution them, it will only be 'showing the cat the way to the cream,'" Mrs. Marten said. "We shall have to let him fight his own battles for any thing I see. 'Every fox has to take care of his own tail.' But boys are unfeeling creatures sometimes, and I am afraid he won't lie on a bed of roses."

They worked silently considering this point, until Louis appeared, with a flushed face, and said:

"I think the carpet is clean, Mrs. Marten. What comes next?"

"Can you wash windows?" she asked, looking round the room.

"I should think so," he answered. "At least

I can follow directions. Where shall I find my tools?"

She gave him his "tools" and his directions, ending with, "Take care of the corners."

"That sounds natural," he said, setting to work; "for my mother always looked at the corners to see if the room was clean, after I had swept it."

"That shows that she is a sensible woman," Mrs. Marten said, appreciating that bit of housewifely wisdom.

"You would think so if you knew her," Louis replied, rubbing the glass vigorously, by way of emphasis, until it shone again. "She's just the best mother a boy ever had!"

"If you said a girl," Sophy interposed, "I should have something to say, because that would be *my* mother!"

"Nonsense," Mrs. Marten said, though she looked pleased. "But it's just as well that you should think so. 'Every mother's child is handsome,' and, by the same rule, I suppose every child's mother is good. I should like to see your mother, Louis. Have you only that sick sister you spoke of?"

"Only Freda," he answered.

"What an odd name!" said Sophy.

"Do you think so?" he returned. "She was named Winifred, after my mother, but father always called mother Winnie, and the two Winnies made a confusion, so we gave Freda the other end of the name."

There was a little change in his voice when he spoke of his father; and Mrs. Marten noticing it refrained from asking the question about him which was on the tip of her tongue, and changed it to an inquiry about Freda's health.

"I don't know whether you would call her sick," Louis said doubtfully. "She doesn't take much medicine now, and she eats like other people; but she hurt her back some months ago, and the doctors said she must not try to sit up for at least a year, so she has to stay in bed."

"Oh, poor child!" said Sophy. "How hard that must be! How did you happen to come here? Did you have friends here?"

"Oh, no," he answered; "we knew no one; but a friend of ours knew Mr. Howarth, and got a place for mother to work with him, and I was glad to come, because of the Academy. We hired that tiny cottage next Mr. Prince's, on Woodland Street, very cheap, and I hoped to find a place where I could get work, and perhaps go to school part of the day. But I very soon found that I should have to drop the school idea, and I began to fear the rest must follow it; for I couldn't find anybody who would take me at any price until I came to you, and I was getting pretty well discouraged."

"Oh, well, I wouldn't do that. 'A stout heart breaks ill-luck,' you know," kind-hearted Mrs. Marten said. "It is true that boys are more plentiful than places, at this time of year, but we'll be on the watch. 'All comes round to him who can wait,' and something will turn up for you, never fear."

"Thank you," he said, with evident sincerity. "I know there's never any use in getting blue, and I don't often do it; but things did look rather dark this morning, and I didn't know where to turn next. I'm all right now."

"Then perhaps you would like something to eat by and by," she said. "Sophy can finish here, while we get dinner."

Sophy made a comical face, and Louis smiled.

"You have no faith in my powers, just because I am a boy," he said; "but you will see! Aren't my windows as bright as your Bridget would have made them? I have—oh, let me carry that!" he broke off, catching a pail of water from Mrs. Marten's hand.

They went down stairs, and he speedily showed that he had not overstated his own abilities. He put the fire in order, filled the kettles with water, prepared the vegetables, laid the table, and, in fact, did every thing that she had been accustomed to expect from her servant girl, and did it all with a deft readiness which contrasted strongly with the style of service which Bridget had been wont to render. His mistress' heart was won long before dinner was ready.

"No, I like to cook my own meat," she said, when he proposed to broil the steak. "Then if it isn't all right, there's no one to blame but myself; but I don't doubt that you could do it. I had no idea that a boy could be good for so much in the house."

"Well, you see a boy has to learn, when his mother needs his help," Louis replied. "He has to be both son and daughter sometimes. Shall I feed Dandy now? I'm interested in his having his dinner, since mine depends on his."

"I declare, I had forgotten him!" she said. "Yes; I will show you the way," and she took him out to Dandy's quarters.

The barn was connected with the house by a long low woodshed.

"So that we can get there without going outdoors," she explained. "It comes handy in winter and wet weather."

She introduced him to Dandy, whose looks certainly did not justify his name, and Louis tried in vain to find something complimentary to say about him. He was too much accustomed to Brown Bess's graceful head and glossy coat to be able to admire Dandy.

"He seems to know you," he said, for the horse whinnied eagerly when he saw his mistress, and began to paw, as if connecting her presence with the idea of dinner.

"Good old fellow!" she said, patting him, and supplying him with two or three apples, which he ate from her hand. "I don't need a horse any more than a robin needs a ladder, but I can't make up my mind to sell Dandy, because my husband raised him and was so fond of him. I shall depend on your taking good care of him, Louis."

She showed him how to feed him, and explained his other duties, and then they went back to dinner, to which Louis was ready to do full justice.

The afternoon was as full of work as the morning had been. He wiped the dishes which Sophy washed, and learned where their places were; he swept the kitchen, blacked the stove, and mopped the floor; he put down the carpet and took another one up, and was ready with his help whenever it was needed; and through it all Mrs. Marten watched him with growing satisfaction.

The day's work was done at last, even the milking, though Mrs. Marten's more skillful hands had to come to his aid to accomplish that. He filled the wood-box, and brought in a basket of chips, in readiness for the morning fire, without waiting to be told to do it; and Mrs. Martin told him how to "set a sponge" for the breakfast rolls.

Then he said, "If there is nothing more to do to-night, may I go home for an hour?"

"Certainly," Mrs. Marten said. "I am going to make you an offer, and you will want to consult your mother about it. You have proved that you are worth your salt, and a potato to eat with it. 'Where the will is ready the feet are light.' If you choose to stay, I will keep you until we can find you a better place. If you still want to go to school, I will give you your board for what you can do out of school hours; or, for all your time, I will give you the wages that I gave Bridget—two dollars a week."

A flood of color came to Louis' face.

"To school!" he said, with shining eyes. "Oh, it won't take long to decide which I choose! I never will lose courage again; I will always think that God will bring things right at last. Only this morning that school looked as far out of my reach as the Kohinoor diamond, and I did want it so much!"

"'When the tale of bricks is doubled, Moses comes,'" Mrs. Marten said. "I have faith in a boy who will dig with a spoon when he can not get a shovel, and I'm glad to help him. But about the school, you must see what your mother says. She may not agree with you. Stop a minute,"—for he had caught up his hat. "Tell your mother that I shall want you here nights to be ready for work in the morning, but you can run home every evening for a call, if you choose. You have done Bridget's work to-day, and some of a man's besides, and you may like to take your pay home. Here it is."

He looked at the silver she pushed toward him, but did not put out his hand.

"Have I *earned* that?" he asked doubtfully.

"Why, certainly, you silly boy! It isn't charity, if that is what you are afraid of," she said, laughing. "It is your pay for to-day. Didn't I tell you that you had earned it?"

He took it then, with thanks.

The glow of pleasure was still on his face when he reached home, and his mother greeted him with,—

"Successful at last, my boy, I'm sure!"

"I knew it before I saw you," said Freda. "You did not come slowly, slowly along the road. You were walking fast, and I heard you whistling 'Yankee Doodle,' so I knew."

"Yes, I've got a place at last," he said.

And now, friends, for the moral. Some of you may ask, "Was there ever just such a boy?" or, perhaps, what is of more importance, "*Are* there any such boys *nowadays?*" Thank God, there are both boys and girls, and men and women of much the same stamp, although, perhaps, the character in the story as given above is somewhat an ideal one. I do not know that I ever saw one single boy who possessed all these virtues. I have seen, however, a great many who possessed more or less of the same virtues. How I *should* love to tell you about some of them! But space (and the doctor) forbids. I would say this, however: I have been among such people for more than forty years of my life. I have seen them grow into important positions, and positions of sacred trust. Perhaps I should tell you that the hero of the story above *did* work his way—yes, *fought* his way, inch by inch at times, through the *academy*, next through *college;* and before he died he was *governor of the State* in which he lived.

And now for the moral, dear reader. It is this: When *you* meet such a one, eager and hungry for work, give him a chance. Give him a brief *trial*, at least; and when the great and final day shall come, then the Judge of all the earth will say to you, "Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world. . . . For I was a stranger" (and without work) "and ye took me in."

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$1.00 PER YEAR.

Be not forgetful to entertain strangers; for thereby some have entertained angels unawares.—HEB. 13:2.

THIS issue seems to be largely devoted to a discussion of the advantages and disadvantages of loose and fixed frames. Discussions on this topic will be in order for two or three issues more. Now that there have been hundreds of bee-keepers all over the land who have been testing some form of fixed frame, it is fitting that we compare notes and so avoid expensive mistakes and blunders. In other words, we do not want to get into that unhappy condition spoken of by friend Doolittle, where a bee-keeper wasted all his substance in useless experimenting.

ON page 728, current issue, J. A. Green doubts the statement made by some, that the raking motion on the part of the bees in front of their entrances is prognostic of swarming. We have observed this scraping or raking, hundreds of times, and it usually, with us, occurs some three or four weeks *after* the honey season is closed, and swarming ceased. Almost any time during the latter part of July and all of August we can find a good many of our colonies doing this "washboard act;" and yet, so far as we can discover, it means nothing. The bees at the entrance evidently have nothing to do, and think they must clean off the paint from the alighting-board, as the paint to *them* is foreign.

OUR Shane yard, when brought home, was set out on the S. E. Miller plan (see page 524, GLEANINGS for 1890, or the last edition of the A B C), in groups of five each, so arranged that there would be an alleyway for the bees and one for the apiarist. It looked well to us in the first place on paper, and it works well in practice. As the hives in individual groups are only 14 inches apart, there is a handy seat for working over each hive, and the tools are within easy range of the whole five hives. Where apiaries are arranged with a single hive in a location, there is a great deal of traveling from hive to hive, and a lugging of all the tools. On the plan of five in a group, lugging has to be done only once for every five hives.

A. I. ROOT, JUST BEFORE GOING TO PRESS.

WELL, friends, I am in the office once more; but I do not stay very long, and do not go very often. The doctor forbids it. I have to-day, Sept. 15th, for the first time been down to the creek-bottom garden. It seems wonderful that so great changes could be made in the growing season, in just a little over four weeks. Parker Earle strawberries, set out after my sickness (with transplanting-tubes), are now great strong plants sending out vigorous runners on either side. American Pearl onion-sets, planted at the same time, are now several inches high, making a perfect stand of long green rows. It seems good to get around and look over this wonderful world once more. But I have had a little sad experience in the way of getting well too fast; so, good-by for the present.

LOOK OUT FOR HIM!

WE received the letter below from friend Dadant some little time ago, as you will notice. As it is always our custom to give even a rascal a hearing, we wrote him at once, asking him what he had to say for himself; but by some carelessness of our own he was not promptly published after a considerable time had elapsed with no reply. We trust, however, he has not succeeded in getting any thing from other bee-keepers meanwhile.

Friend Root:—Will you please advertise Mahlon Taylor, of Columbus, Ohio, as a swindler? You may give our name as authority. He buys honey and does not pay for it. He is so much more to be feared, because he refers, as you will see by his letter-heads, "to any house in the city," and has been connected with some honorable men in the same place. We are the losers of about $50,00 on his account, owing to his former connections.

Hamilton, Ill., Mar. 31, 1891. DADANT & SON.

INSURE YOUR HONEY AND HONEY-HOUSE.

A FEW days ago we received an appeal in behalf of a bee-keeper who had lost his honey-house, and its contents of several thousand pounds of honey, by fire. The building was not insured; and the friend of the one who lost the property desired us to put in a notice, requesting bee-keepers to help our brother in trouble by contributions, the same to be deposited at the Home of the Honey-bees, and by us forwarded to the party direct. We wrote to the friend that this would be impossible, and that, when a bee-keeper was so improvident as not to have his property insured, he would have to stand the loss. A honey-house and contents can be insured for a trifling sum; and even if you never suffer loss by fire, you can, perhaps, go to bed and sleep a little easier. A house does not need shingling when it does not rain, and a building does not need to be insured if there is to be no fire; but we do have rains, and we do have fires, and it is wise to be on the safe side.

BEE-PARALYSIS AND THE SALT CURE.

MR. ALLEY says, in the *Apiculturist*, that bee-paralysis (*bacillus depilis*) can not be cured by changing the queen, and wonders how much longer this sort of advice will be given. He pronounces the salt cure to be sure, and that many readers of the *Apiculturist* have reported success with it. Salt is known to be a mild antiseptic, and it is possible that salt water, or syrup strong of salt, might have the desired effect. We shall test it at our earliest opportunity, and in the meantime we should like to have reports from those who have tried it. We do know that the removal of the queen has, in all cases that have appeared in our apiary, cured the disease, thus showing that the trouble in our case is an inherited one. Cheshire, we believe, found the bacilli in the ovaries of the queen. By the way, something more ought to be known concerning this disease. The reports of its appearance in various apiaries all over the country rather go to show that it is on the increase; and although it is a mild disease compared with foul brood, it should receive our careful attention.

GOOD OR BAD PROPOLIZERS—WHICH?

DR. MILLER, in Stray Straws, pokes fun at us in one or two places. First, he can not quite reconcile the statement we made editorially, that the Punic bees are *bad* propolizers, while the introducer of the same bees quotes them as *good* propolizers. Why, doctor, we both mean the same thing. When bees deposit propolis to an excess, it is disagreeable and bad for the bee-keeper; therefore we said they are *bad* propolizers, just as we would say they are bad stingers, although "a Hallamshire Bee-keeper" might call such *good* stingers. The English language is unfortunate in having so much elasticity. You may remember the story of the Frenchman who, while on a tour through this country, was told to "look out" while he had his head sticking out of the window, meaning that he should *pull it in;* and on another occasion he was told to "look out," meaning that he was to put his head through the window and view some sight. It is said that he complained, after getting his head severely bumped, because of the ambiguity of *our* language. Doctor, we didn't think that of you. You are *bad* for poking fun, even if the Hallamshire chap should insist that you are *good* at it.

DEATH FROM A SINGLE BEE-STING.

A CASE of fatal stinging is going the rounds of the Eastern press. It seems that a young man, Wm. H. Danley, was stung on the finger. He complained of excruciating pain, and his hand commenced swelling. In a few minutes his whole system was affected. The report goes on to say, that, "only ten minutes after being stung, he fell into a comatose condition; and before aid could be summoned he was dead, only fifteen minutes having elapsed from the time he was stung. The physicians expressed a belief that the sting entered a nerve or blood-vessel, and the poison was carried to the vital organs, causing almost instant paralysis." It is no doubt true, that the young man was very susceptible to the influence of bee-poison, otherwise the sting could not have killed him, even if it *had* entered a nerve or blood-vessel. We can not deny the fact that, in rare cases, there are persons whose death is liable to occur in a few minutes after being stung, unless medical aid is at once summoned; but these cases are so very rare that they give no reason for alarm. Almost every one who has to do with horses is liable to be kicked or run away with, and yet this liability does not cause any fear in handling them.

HOW TO KEEP BEES AWAY FROM THE CANDY-STANDS AT COUNTY FAIRS AND OTHER PLACES.

ALMOST every fall we have trouble by our bees visiting the candy and popcorn stands during the days of our county fair. As the grounds are right in sight of our home yard, the bees, especially during a dearth of honey, are quite apt to make themselves disagreeably free at these stands. Several times we have been threatened with a suit for damages, although we have done all we could to keep the bees at home, and have offered to make good all damages. This year we provided several wire-cloth paddles, *a la* Doolittle. These paddles, as made by Mr. Doolittle, are small enough to go into a hip pocket; the center is cut out, and covered with wire cloth. The object of the wire cloth is to permit the air to pass through the paddle, so as not to fan the bees away. Doolittle's were made of wood, but ours are made entirely of metal, the wire cloth being supported and held in position by one wire loop, and the hole around the edges securely bound with tin. Well, we supplied each one of these candy-stands with the aforesaid paddles, and requested the proprietors to kill the very first bee that hovered around his goods, adding that, if they allowed a single bee to get away with a single load, she would bring back a dozen others; and these dozen others, if still allowed to escape, would increase the number of visiting bees proportionally. We impressed this latter fact upon their minds, and then told them that, if they hadn't time to kill the bees themselves, we would employ small boys to do it for them. They thanked us for the information, and told us they thought they could manage the thing themselves, and they did. Whenever a stray bee appeared, either they or their clerks killed it promptly; and the result was, that all the candy-stands were free from the nuisance of bees. An ordinary observer would have said that not a single bee made its appearance during the two days. The whole secret lies in not letting the bees have a start.

HANDLING HIVES MORE AND FRAMES LESS; HOW TO PRODUCE A TON OF HONEY FOR LESS MONEY AND LABOR.

On page 727 of the current issue we promised to say something further on this subject. The older a bee-keeper grows in experience, the more he will handle hives rather than frames; and especially so when his colonies increase to such an extent that they have gone beyond his individual care, and there is a prospect that hired labor has got to come in and assist. To illustrate what we mean, we will give a few manipulations that are, perhaps, to a greater or lesser extent practiced by the more or less advanced bee-keepers.

At an out-apiary it is seldom necessary to hunt the queen to see whether the colony is queenless or not. The pulling-out of a single comb, with eggs and brood in all stages, will show pretty well the condition of a hive. "But," you say, "how are you going to know about the other combs?" A single comb drawn from the center of the hive will, to a practiced bee-keeper, pretty accurately tell the condition of all the other combs with reference to brood. If it is well filled, and has brood in all stages, the inference is pretty strong that at least four or five other frames have brood in, to a greater or lesser extent, depending on the season of year, and whether the queen is a young or old one, which the record should show. If it is in the fall of the year and there is only a small patch of brood in the comb from the center of the brood-nest, very little or no brood may be expected in the other combs. For experiment, in the last few weeks we have been diagnosing colonies as to the extent of their brood in just this way, and then verifying the result by looking at every comb. We seldom missed our guess.

A practical bee-keeper will tell, when first lifting a cover, almost unerringly whether a colony is queenless, by the behavior of the bees. For the benefit of beginners we will say that queenless bees have a sort of nervous hum, which can be very readily learned after it has been heard a few times; and this nervous hum, while by no means infallible, is tolerably safe to go by, especially with Italians. Sometimes hybrids and blacks, more particularly the latter, will hum just from mere disturbance, even when they are not queenless. In going through our out-apiaries when time is limited, we very often lift off only the cover. If the bees appear quiet, and seem to be populous in numbers, we replace the cover after blowing a little smoke down between two or three of the frames, to see how the brood-combs look. Some three weeks ago we went through the whole Shane yard in just about this way, and removed the frames from only eight or ten colonies, which we found to be queenless, one of them having fertile workers. These we supplied with unsealed larvæ or queen-cells. A few days ago, to prove whether our former diagnosis had been true or not, we looked carefully through the whole apiary, and found by the record on each hive that we had not in a single instance misinterpreted the condition of the hive. Bees will sometimes hum when they have a virgin queen; but an examination of a single comb will probably reveal the presence of one or two cells that have been gnawed into in a way that indicates that a virgin queen has recently been thereabouts. We say "recently" advisedly, because in three or four days more, these cells will have a very different appearance, the bees having smoothed them over the ragged edges of the cell. We seldom look for a virgin queen; and about the time we expect her to be laying, we look for eggs, but not for the queen. If she happens to be on the first comb we pull out, all well and good; otherwise, if we see the eggs laid regularly, and the frame pretty well filled on both sides we infer she will continue in this sort of business until she has gone over six or seven combs, depending on the season of the year, and whether honey is coming in slowly or not. If the virgin is lost during the wedding-flight, the bees are pretty apt to make the fact known by a peculiar hum; then we give a cell. If she is not lost the cell will do no harm.

The amount of stores in a colony can largely be told by hefting the hive, or, at least, by pulling out the two outside frames and blowing smoke down through the rest so you can look down between the frames. During the work-season you can tell what colonies are doing well and are prosperous, largely by the entrances. These things are familiar to veterans.

So far the handling of hives more and frames less applies equally to both loose and fixed frames. Where fixed frames give us an advantage on the subject of handling hives more and frames less is, that we can pick up two, three, or four frames at a time. This is specially advantageous in forming nuclei; and if we do not have very much time we do not wait to see which half the queen is in. The slate is put in a certain position on the cover; then in about 24 hours we go round and lift the covers and wait for the hum. If not satisfied we pull out one of the combs and look for initial cells. The queenless hive is then supplied with a caged queen, according to the diagnosis.

There is one feature that seems to be peculiar to the Hoffman frame; and that is, when it is necessary to pull a frame out it is not required to finger over four or five to get room for the one to be removed. Draw out the division-board, crowd over from the center three or four frames just next to the one you wish to remove. This will leave nearly two inches of room in which to move the frame in question, and there is no needless rolling-over of bees. You can examine as many frames as you like, either in pairs or singly, replace any, and, with one or two shoves with a screwdriver, push them all to their place, and all are equally distant. But, as I have before said, smoke must be blown down between the uprights before this shoving-over is made.

In giving room to colonies, we have frequently picked up four frames of foundation out of a hive, carried them just us they were, and set them down in their place, without even disturbing their position. Thus the four can be handled in the time that one could be on the old loose plan. Again, the fixed frames do not have to be fussed with; i. e., stuck up for shipping or moving.

It can very often be determined whether a colony needs more super room by the flight of the bees at the entrance. We found, by examining into all such hives as we thought needed more room, that our entrance diagnosis was not far from right. Now, the fact is, we want to learn to do as little work as possible in handling frames, and as much as possible in diagnosing *hives*.

We have given only a few of the many ways in which a colony may be diagnosed on the scheme of handling hives more and frames less. We should be glad to have this subject thoroughly discussed by our readers, because it will help to solve the problem of how to handle whole apiaries with less labor—in short, produce a ton of honey for less money. Now, Mr. Manum, we are all on tiptoe to hear from you.

SPECIAL NOTICES.

CHANGE IN PRICE OF EARLY PURITAN POTATOES.

We have been obliged to change the price of Early Puritans from 60 cts. per bushel, as advertised in GLEANINGS Aug. 15, to $1.00 per bushel, or $1.15 packed in new slatted boxes. Price per barrel will be $2.50. Peter Henderson, in his new fall catalogue, charges just *double* above price.

STRAWBERRIES.

Sept. 11.—Now is just the best time to make your strawberry-beds that you will have this year. We have on hand now lots of nice plants of all the varieties we advertise—Jessie, Haverland, Bubach, Gandy, and Sterling; and we can, in most cases, pack your plants so they can start on the next train after receipt of your order. Prices: 10 for 10 cts.; 100, 75 cts.; 1000, $6.00. By mail 5c extra for 10, 25c for 100.

AMERICAN PEARL ONIONS.

We still have plenty of nice sets left, and now is the time to plant them. The rows should be about a foot apart, and the sets may be put two and a half inches in the row. They ought to weigh from ½ pound to 1 pound apiece by the middle of May; and this year we sold most of our crop at 10 cts. a pound. The crop will be all off the ground by the time strawberries are gone, leaving plenty of time to put out early celery. Price 35c per qt. By mail, 10c extra. $2.25 per peck. We have just got a lot of new seed of the American Pearl onions, which we will sell at $3.50 per lb.; ½ lb., $1.85; oz., 25 cts.; ¼ oz., 10; packet, 5 cts.

ONE-STORY CHAFF HIVES CHEAP.

Having adopted the Dovetailed chaff hive as our leader in this line, we still have on hand a good stock of the old-style 10-frame one-story chaff hives to take Simplicity upper story and furniture. To work this stock down we offer you a reduction of 20 cents a hive on any of the numbers as listed page 21 of our price list. This equals a reduction of 20 per cent on the hive without furniture. You may have the early-order discount of 5 per cent besides. This offer is made only to reduce stock, and we reserve the privilege to withdraw it at any time. This is a very good hive, especially for those who prefer the Simplicity combinations.

ANCHOR PASTE FLOUR.

This is used like dextrine for pasting labels to tin, glass, etc. In many respects it is better than dextrine. It is mixed cold, while dextrine has to be mixed in boiling water. It will not sour nor mold, will keep in any climate, and contains no poison. If by evaporation it becomes too thick it is thinned by simply adding a little cold water. Its adhesive qualities are excellent. It comes put up in tin cans of four sizes, nicely labeled with directions.

Price of ½lb. cans, 10 cts. each; by mail 20 cents.
" " 1 " " 15 " " " " 33 "
" " 2 " " 25 " " " " 60 "
" " 10 " " 1.00 " " Not mailable.

In lots of 1 doz. or more cans to dealers to resell, special prices quoted on application.

GLEANINGS FREE TO NEW SUBSCRIBERS.

Our subscription list is constantly growing by a healthy vigorous growth, being not far under 11,000 at this time. We desire to increase to 12,000 as rapidly as possible, and are offering some special inducements to that end. There is a quarter of a year remaining before January, after this issue; yet we propose to give to *new* subscribers for 1892, at $1.00 each, the rest of the year free. This is surely a strong inducement to get your neighbor bee-keepers to subscribe, especially when you consider that these numbers will contain notes of travel from the senior editor, who is going on an extended trip west and south to regain his strength after the sickness through which he has just been passing. You who have given frequent evidence of the enjoyment, help, and inspiration of his writings will be glad, no doubt, to put forth a little effort to widen the circulation of GLEANINGS and thus extend the influence of his writings. To repay you for your efforts in securing new subscriptions we will, if you send in your own renewal at the same time with a new name, and $2.00 in cash, send you postpaid any of the following books.

Merrybanks and His Neighbor, a book of 228 pages, half the size of this page, and over 60 illustrations. A. I. Root, author. This is a serio-comic serial that appeared in GLEANINGS years ago. Not only the grown-up folks, but children as well, will find it interesting almost to fascination, and likewise profitable. Regular price is 25 cents; but if more are wanted than the one we give you, we will make a special price of 15 cents postpaid.

Robinson Crusoe, in paper covers; 240 pages, illustrated. This old story needs no description. It is published in a great many different forms. The book we offer is a 25-cent edition, which we have always sold for 25 cts. by mail, or 20 with other goods. We now reduce the price to 15 cts., postpaid, or give it free on above conditions.

The Christian's Secret of a Happy Life; in paper covers. Over fifty thousand of this popular work have been sold, and it is just as good and true as ever. Given free for one new subscriber, with your own renewal, or the same in cloth binding for two names with your own renewal.

Please remember, that only the numbers of this year remaining after the subscription is received will be sent to new subscribers free, so you should go to work at once and secure the names as soon as possible. The earlier you do so, the greater the inducement.

Last Chance

FOR THE SEASON OF '91.

If you wish ALBINO or GOLDEN ITALIAN QUEENS, send your order at once, as I will not have any for sale after Sept. 30. Catalogue free.

A. L. KILDOW, Sheffield, Illinois.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S

Honey - Extractor.

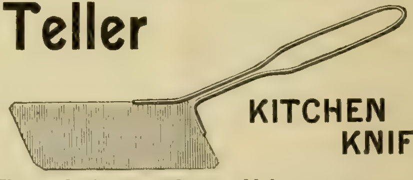
Square Glass Honey-Jars,
Tin Buckets, Bee-Hives
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers." Please mention this paper.

Teller



KITCHEN KNIFE.

This is the knife we have sold for years as our 10-cent honey-knife. It has lately been improved by putting on a wire handle instead of the old one of cast iron. It is the invention of a woman, for work in the kitchen, such as chopping potatoes, turning pancakes, scraping kettles, etc. Many thousands have been sold for use in the kitchen, and they prove so satisfactory that the manufacturer makes the following guarantee:

Any purchaser who, after using the knife one month, may decide that she does not want it, may write me to that effect, stating the amount paid, whereupon I will return to her the said amount by mail. R. K. TELLER.

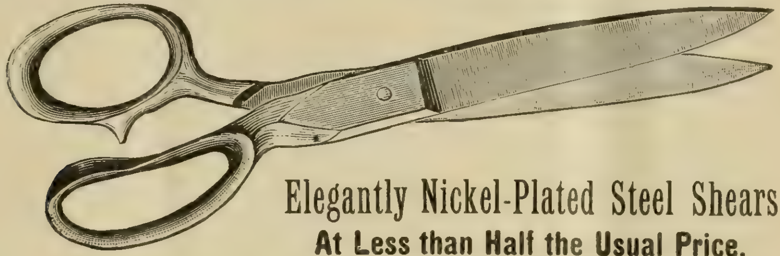
They are excellent for scraping bits of comb and propolis from frames and hives, and can be used for uncapping. We have just bought our third lot of about a thousand, and offer them as follows:

Ten cents each. By mail, 15 cts., or 2 for 25 cts; 85 cts per doz.; or by mail, $1.20; $9.00 per gross, by frieght or express.

A. I. ROOT, MEDINA, OHIO.

ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. W. Z. HUTCHINSON, Flint, Michigan.

NICKEL-PLATED "LEADER" SHEARS.



Elegantly Nickel-Plated Steel Shears

At Less than Half the Usual Price.

TABLE OF PRICES.

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5	6 inch nickel Leader Shears	$ 20	$1 10	$ 6 00
5	6½ " " " "	25	1 25	7 00
5	7 " " " "	30	1 40	8 00
5	7½ " " " "	35	1 60	9 00
5	8 " " " "	40	1 80	10 00
6	8½ " " " "	45	2 00	11 00
7	9 " " " "	50	2 25	12 00

About two years ago we bought 150 dozen of above shears, and they have gone off like "hot cakes"—so much so that we have just bought another lot of 350 dozen, which are, if any thing, nicer than the other lot, most of which are gone. The others pleased so well that we got repeated and increased orders from the same parties. Neighbors of those who were fortunate enough to get a pair, on seeing them and learning the price, wanted a pair, and so the orders kept repeating themselves. We are always glad to give our customers a bargain which gives more than satisfaction, and this is one of them. You will see we have made special prices in quantities, and no doubt some of you can do a good thing for yourselves, as well as your neighbors, in getting a quantity and introducing them. They are put up ½ dozen in a box, and we can not assort ½ dozen; but we can give you larger lots assorted, ½ dozen of a kind.

A. I. ROOT, Medina, O.

Apiary and Storeroom for Sale.

In Central Iowa, 80 colonies Italian bees in modified 10-frame L. hives, and all necessary modern implements. A good supply of white clover, basswood, and a great variety of other bee-pasturage. No large apiary within ten miles; plenty of room for out-apiaries. Also a good location for a store or creamery. A good house with 12 rooms, new barn, 36x42 feet; good well and cistern; 20 acres of land, 3 acres used for raising truck, the rest for pasturage; all fenced with hog-tight fence. A fine lot of young basswood and other kinds of timber growing; ¼ mile from school and Sunday-school. Reason for selling, old age and poor health. For further particulars, address W. R. H., 17-19 21d
St. Anthony, Marshall Co., Ia.

Please mention GLEANINGS.

For Sale.

PORTABLE ENGINE AND BOILER,

4 HORSE POWER.

In good condition. Address

LOWRY JOHNSON, Masontown, Pa.

Manufacturer Utility Bee Hives, Smokers, and Feeders. 17tfdb

Please mention this paper

FOR SALE OR EXCHANGE.—Michael's Early Strawberry Plants, $4.00 per 1000. Will take fruit-trees in exchange.

J. S. WARNER, Medina, Ohio.

BEE-HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
14tfdb *HIGGINSVILLE, MO.*

Please mention this paper.

FOR SALE.—20 hives of bees for $60.00; Italians and hybrids; 8 Simplicity frame hives. Each hive is boiling over with bees. If sold all to one party, will throw in free a 15-gallon honey-extractor, cost $12.00. C. E. PRICE,
18-19d Smithtown Branch, Long Island, N. Y.

Mention this paper.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; $1.20 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

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Cash, Philadelphia, Pa	1 30
H. L., Ind	1 50
Epworth League, St. Davids, Can	3 55
David Lucas, Jewett, Ohio	1 00
A. L. Day, Paterson, N. J	1 00
B. & W. Stephens, Fayette City, Pa	1 00
H. R. Talcott, Seattle, Wash	5 00
S. & E. Davis, Montrose, Col	50
P. W. Smith, Ephratah, N. Y	80
T. W. Livingston, Dalton, Ga	1 00
W. G. & Mrs. Snodgrass, Montrose, Mo	2 00
L. R. Hillman, Canova, S. Dak	1 00
C. K. Decker, Hanford, Cal	1 00
N. N., Woodville, Ohio	1 00
H. & W. Jackson, Karns City, Pa	1 10
H. C. Finch, Oil City, Pa	1 00
Mary E. DeKalb, Raceville, N. Y	1 00
Mary Jaessing, Maumee, O	1 00
J. Johannsen, Port Clinton, O	50
	$26 50

Including above amount, subscriptions have reached the sum of $123.65.

SPECIAL NOTICES.

Remember that our untested queens come up to $1.00 each during October.

NEW SEEDS AND NEW PRICES FOR 1892.

Of course, we do not undertake to raise all the seeds we sell; but there are certain kinds of which we make a specialty, or that, for certain reasons, we prefer to raise; and as I make it my business to examine personally the plants and see to the curing and selecting, I feel sure that what seeds we raise are true to name, and as good as can be found. Seeds are never saved except from the best, and from a crop that has given us special satisfaction.

Asparagus.—Ounce, 5c; lb., 75c. Asparagus-roots, two years old, ten for 10c; 100, 75c. If wanted by mail, add at the rate of one cent each for postage.

Henderson's Bush Lima Bean. — Half-pint, 15c; quart, 50c; peck, $3.

Kidney Wax Bean.—Pint, 15c; peck, $1.75.

White Kidney.—Pint, 10c; peck, $1.

White-Plume Celery Seed.—This seed is not new; but we would rather have it to sow than any new seed in the world, because it neither runs up to seed nor rusts, and it is a part of the same seed that we sold and sent out during the past season. We have bought up all that was to be had—only 35 lbs. Per oz., 20 c; lb., $2.50.

Shoepeg Corn.—Half-pint, 5c; peck, $1; bushel, $3. This is not only equal to any sweet corn, but it is perhaps the best for table use of any thing known. Our yield this past season has been enormous. The stalks were allowed to stand very close—closer than we ever put any kind of field corn; but, notwithstanding, the greater part of the stalks contained three ears, a few of them four, and scarcely any of them less than two ears to the stalk. Of course, the ears are small. I should think it would be of great value for a silo. Of course, our large crop was secured on ground thoroughly underdrained and well manured.

Our late mammoth sweet corn—the special strain that we have kept for so many years—we offer at the same prices as per above. If anybody should prefer to buy it on the cob, they can have it at just half the above price.

Onions.—We have now thoroughly cured as fine a crop of Spanish King or Prize-taker onions as you often see in the market, imported from other countries. At present we offer them ready for shipment at $1.00 per bushel; $2.50 per barrel of 11 pecks. Onion-sets, Yellow Danvers, 20c per quart; $1.50 per peck, or $5.00 per bushel. We have three kinds of *white* onion-sets which we offer at 30c per quart; $2.25 per peck, $7.50 per bushel. The three kinds are, the old well-known Silverskin; the New Mammoth Silver King; and the beautiful oval White Victoria. These are all put through a sieve that screens out every thing larger than ¾ inch in diameter. We have another larger size, which are sometimes used for sets, but more often for pickling, a little larger than the above, which we furnish at just half the above prices. If wanted by mail, add 10c per quart extra. The question has come up, Will not *all* of these foreign onions winter over like the American Pearl, if planted in the fall, so they may take root and make a little growth? We can only say that we are testing the matter, and will give a report in the spring.

Potatoes.—Early Ohio, $1.25 per bushel.

At the present writing we do not know any thing about the market price for these; but we have concluded to offer ours as above, subject to advance or decline in the market.

Early Puritan, $1.00 per bushel, or $2 50 for a barrel holding about 11 pecks. These Early Puritans were all raised from second-crop seed sent us from the South. This year this kind of seed has given us much better potatoes than seed of our own raising. They were shipped us last fall, just before freezing weather set in, and, of course, they did not have to stand in the cellar nearly as many months as potatoes raised here in Ohio. Friend Terry has also expressed himself as much pleased with the second-crop seed-potatoes raised in the South. This promises to open up a new industry for our friends who live far enough south so they can rise two crops of potatoes.

Early Sugar Pumpkin.—Oz., 5c; lb., 50c.

Bloomsdale Spinach.—Per lb., 25c; 5 lbs., $1.00.

Ignotum Tomato.—Per ¼ oz., 10c; oz., 30c; lb., $3.50. This seed is all from selected specimens grown on our own vines.

Livingston's Beauty, from selected specimens; oz., 5c; lb., $2.50.

HONEY-BEARING TREES AND SEEDS.

Basswood-trees.—One foot and under, each, 5c; 10, 30c; 100, $2.00. By mail, each, 8c; 10, 35c; 100, $2.25. One to five feet, each, 10c; 10, 75c; 100, $5.00.

Tulip (or whitewood) trees, 10 to 15 feet high, each 25c; 10, $2.00; 100, $15.00. Smaller size, 5 to 10 feet, each, 15c; 10, $1.25; 100, $10.00.

These latter are very handsome trees, having been in nursery rows for several years, and having been carefully pruned, so they are of nice shape for handsome shade-trees. For a description of both tulip and basswood, with illustrations, see our A B C book.

Alsike Clover.—At present there seems to be no very definite price in the market. There have been some sales of seed at from $6.00 to $7.00—$7.50, perhaps, for very choice seed. The lowest price we dare quote at retail at present is $9.00.

Japanese Buckwheat.—As the crop has not as yet been harvested, no prices have been settled on. It probably will not be less than $1.00 per bushel. In order that we may settle upon some price as near as possible, we would ask the friends to tell us what they have, either of alsike or buckwheat, and also mention what prices have been offered. In this way we can determine about what prices the product will probably bring.

MUST BE SOLD.—I have a lot of new and second-hand bee-supplies for sale at 50 per cent below cost. Full list and prices on application. They consist of Simp. bodies, covers, Simp. section cases, Sections made up and flat, Honey-Extractor, No. 5, Division-Boards, Drone-Traps, Parker's Fasteners, and numerous other things, about $45.00 worth in all; $25.00 cash buys them. Honey taken in exchange.
19-24db **G. WIEDERHOLD, YONKERS, N. Y.**
Please mention this paper.

HONEY COLUMN.

CITY MARKETS.

CHICAGO. *Honey.*—As yet, but limited quantity of honey on market, We have good demand for fancy white at 16c; other grades, 14@15. Extracted selling from 7@8. *Beeswax*, selling quick at 26@27c.
Sept. 19. S. T. FISH & CO.,
189 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Supply of comb and extracted light; demand good for comb. 1-lb. white, 16@17; 1-lb. dark, 12; 2-lb. white, 14@15; 2-lb. dark, 10@12. Extracted, white, 7@7½. Dark, 5½@6.
Beeswax, 26. HAMBLIN & BEARSS,
Sept. 21. 514 Walnut St., Kansas City, Mo.

ST. LOUIS.—*Honey.*—The market is quiet. We quote: Comb, common, 10@11; choice, which is very scarce, 12@13½. Extracted, in barrels, dark, 4½@4¾; light and good flavor, 5@5¼; cans and good flavor, 7@7½. *Beeswax*, prime, 26.
D. G. TUTT GRO. CO.,
Sept..21. St. Louis, Mo.

NEW YORK.—*Honey.*—Comb honey now arriving. Warm weather checks demand yet. We expect a good business when it becomes cooler. We quote: No. 1 white, 1-lb , 16. No. 2, 13@14; 2-lb., No. 1, 14. Extracted, basswood, 7¼@8; California, 7@7½; common southern, 65@70c per gallon. *Beeswax*, 26c, with a good supply and limited demand.
F. G. STROHMEYER & CO.,
Sept. 21. New York.

ALBANY.—*Honey.* The continued warm weather has a depressing influence on the honey-market, and but very little doing. We look for an improved state of affairs as soon as we get colder weather. No change in prices since last quotation.
CHAS. MCCULLOCH & CO.,
Sept. 22. 393, 395, 397 Broadway, Albany, N. Y.

COLUMBUS. *Honey.*—Owing to warm weather and abundance of fruit prices have weakened. White-clover selling at 16@18; and demand fair. Look for better prices with the approach of cold weather. No sale for dark or extracted honey.
Sept. 19. EARLE CLICKENGER,
121 S. Fourth St., Columbus, O,

CLEVELAND.—*Honey.*—Our honey - market quiet. Fine white comb, 1-lb., 15@16; inferior, very dull, 10@12. *Beeswax*, pure, scarce, and selling 28@30.
Sept. 19. A. C. KENDEL,
Cleveland, O.

SAN FRANCISCO.—*Honey.*—Firm, extracted, 5½@6; comb, 12@14. *Beeswax*, 24@25.
Sept. 15. SCHACHT, LEMCKE & STEINER,
San Francisco, Cal.

DETROIT.—*Honey.*—Comb honey in fair demand, and bringing 11@13. Extracted, selling slow at 7@8.
Beeswax, dull, 25@26. M. H. HUNT,
Sept. 21. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The demand is steady; supply light. White 1-lb. comb, 15@16; dark, 10@12. Extracted, white, 7@7½; dark, 5@6. Receipts of comb and extracted light. *Beeswax*, demand good, supply light, 23@26. CLEMONS, MASON & CO.,
Sept. 21. Kansas City, Mo.

NEW YORK.—*Honey.*—Honey is coming in very freely, but very little going out on account of the exceedingly warm weather. We quote fancy 1 lb. sections, 15c; 2 lbs., 12@13; fair, 1 lb., 13; 2 lbs., 11@12; buckwheat, 1 lb., 10½@11; 2 lbs., 9@10. Extracted, 7@7¾. *Beeswax* firm at 26@27c; stock exceeds the demand. CHAS. ISRAEL & BROS.,
Sept. 25. New York.

FOR SALE.—7 barrels of dark extracted honey. Will run near 500 lbs. to barrel. Make us offers on lot, or any amount wanted.
J. A. THORNTON, Lima, Ill.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE.—1200 lbs. white clover honey, in 60-lb. cans. H. VAN VRANKEN.
Union City, Branch Co., Mich.

FOR SALE.—6 tons alfalfa and sweet-clover honey in 60-lb. cans, 5c by the ton. *Must sell.* 19tfdb
A. B. THOMAS, Payson, Utah Co., Utah.

Wants or Exchange Department.

WANTED.—To exchange a good farm of 80 acres, for sheep, or part sheep and balance in cash.
J. M. CATE, Moravia. Appanoose Co., Iowa.

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To rent or purchase an apiary of one or two hundred colonies in California or Arizona. A. CARDER, Hebron, Boone Co., Ky. 17-18d

WANTED.—To exchange a No. 1 saw-table, parallel gauge, hinge top, shaft, belt, 2 saws, emery wheel, not used over two mos.; a fine 3-frame observatory hive; a 60 lb. spring scale. All for extracted honey (white), beeswax, or offers.
18-19d H. L. GRAHAM, Letts, Iowa.

WANTED.—To exchange Barred Plymouth Rock chicks for comb honey. A. A. SIMPSON,
18-19d Swarts, Pa.

WANTED.—A position in any of the Southern States, Arizona, or California, by a practical bee-keeper, of 15 years' experience. Understands farming, and something of fruit culture.
Address Box 25, care of F. B., Gallupville, N. Y.

WANTED.—To exchange a fine 20-acre fruit-farm, at Terry, Miss., 1500 peach-trees in bearing, for city property, or offers. A desirable home in the sunny South. GEO. GOULD, Villa Ridge, Ill.

WANTED.—To exchange one fine breech-loading shotgun, one Safety bicycle, used but little (only one year from shop), for bees or supplies within 300 miles of F. H. HOWARD.
18-19d Garden City, Kan.

On Their Own Merits.

My **5-Banded Golden Italians** will give satisfaction. Try them. Warranted queens, $1, 3 for $2.50. Tested queens, $1.50. Circular free. 17-19d

CHARLES D. DUVALL,
Spencerville, Montg'y Co., Md.

PRINT YOUR OWN CARDS
PRESS $3.00
Circular Size $8.00
Press for a small newspaper $44.

SAVE MONEY! Make money printing for others! Type setting easy; printed instructions. Send 2 stamps for Catalog of **Presses, Type, Cards, Paper,** &c., to the Factory.

KELSEY & CO.,
Meriden, Connecticut

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BERRY PLANTS, Grape Vines, Fruit Trees, Small fruit plants. Large stock. Low prices. Catalogue free. **WM. STAHL, Quincy, Ill.**

280 Acres of Good Farming Land For Sale.

150 acres cleared, the balance wood land, with bituminous coal near boat-landing; 3 dwelling-houses with other out-buildings; fish-ponds with carp; 80 colonies of bees; situated 6 miles south of Galla Creek Station, on Ft. Smith & Little Rock R. R., on north side Arkansas River, with landing for steamer. My reason for wanting to sell is, that I am old and unable to labor and want to retire, and will give some one a bargain. Call and see me.

A. W. MATTHEWS,
HOLLA BEND, POPE CO., ARK.

LADIES' FINE SHOES.

PRICE ONLY $2.

Genuine Kid, Soft Soles, Elegant Style; Broad or Narrow Toe. Sizes, 2 to 8. C, D, E, and E E widths. This Shoe is sold at $3 in all retail stores.

OUR PRICE $2, POSTPAID.

FIT, STYLE, AND WEAR GUARANTEED.

NO SHODDY, BUT GOOD SHOES.

Send P. O. order, Registered Letter or Postal Note.

C. L. GRIESINGER, MEDINA, OHIO.

Reference, GLEANINGS. 18-19-20-21d

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Golden · Italian · Queens

BY RETURN MAIL.

The Golden Italians are considered to be the handsomest and gentlest bees in the country. As workers, they are second to none. My breeding queen and bees took FIRST PREMIUM last fall at the Detroit Exposition. I can now furnish untested queens promptly, for $1.00 each, or 3 for $2 50. Tested queens $2.00 each. Select tested, $3.00 each. Make money orders payable at Flint, Mich.

N. B.—One of my queens, together with her bees, has again taken FIRST PREMIUM at the Detroit Exposition. 19tfdb

ELMER HUTCHINSON,
ROGERSVILLE, GENESEE CO., MICH.

Please mention this paper.

—MY NEW—

THIN DOUBLE-WALL HIVE

Is the best summer and winter hive yet devised. Takes regular "L" furniture. Is lighter than ⅞ single-wall hive; may be storified to any extent, etc., etc. Send for descriptive circular. Special low prices for 1891 to introduce it. A full line of bee-keepers' supplies always in stock. Catalogues free.

C. W. COSTELLOW, Waterboro, York Co., Me.

Please mention this paper. 15-19-23d

YOUNG TESTED ITALIAN QUEENS FOR $1.25 EACH.

Do Not Let a Colony go through the Winter Queenless. Get a Queen.

19-20d **JOS. NEBEL & SON, High Hill, Mo.**

Please mention this paper.

$5 · FIVE DOLLARS · $5

or less, invested in ***BULBS*** this fall, will give you weeks of pleasure next spring. Try it. Roses, and Carnations for winter blooming. A specialty of Hyacinths, Tulips, Crocus, Narcissus, Lilies, etc. PRICE LIST FREE. THEODORE JENNINGS,
19-20d Port Chester, N. Y.

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FOR SALE!

Italian bees bred for business and beauty combined, for only $4.50 (7-fr. Root hives), if sold by Oct. 1. Any number from 1 to 60. Guaranteed free from disease. Do not miss a good chance for a bargain. 17d

W. V. MOOREHOUSE, LAFAYETTE, IND.

N. A. KNAPP, Rochester, Lorain Co., O.,

HAS FOR SALE

50 STRONG COLONIES OF PURE ITALIAN BEES,
500 WHITE AND BLACK FERRETS.

Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

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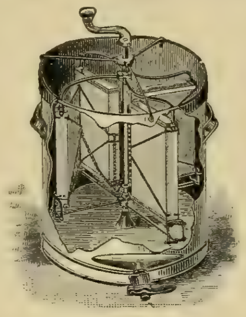

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USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

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FOR SALE.

One of the best all-round grain, stock, and fruit farms in Virginia. Thousands of peaches, apples, and other fruits now bearing. Natural increase of apiary this year from 13 to 47 colonies. An old homestead of 800 acres that will be sold at a bargain. If interested, write for full description, price, etc.

CYRUS H. KLINE,
18-19d **BELLS, BEDFORD CO., VA.**

Please mention this paper.

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
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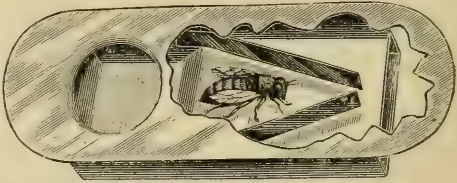
Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

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A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices**. Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

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GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XIX. OCTOBER 1, 1891. No. 19.

STRAY STRAWS

FROM DR. C. C. MILLER.

ARE YOU READY for winter?

THE NORTH AMERICAN meets at Albany, Dec. 8–11.

DOUBLING UP COLONIES may be done more easily now than later.

I'M GLAD to see Hive-making, in the latest A B C, brought right up to date.

"PRINCESS" is what our English cousins say, instead of "virgin queen." Isn't princess a better name?

MAY A KIND PROVIDENCE attend Bro. A. I. on his journey, and bring him back younger and stronger, outside and inside.

"TEN THOUSAND BEE-KEEPERS in the U. S. having 500 colonies each," is going the rounds. I challenge the proof that half of that is true.

COUGH MIXTURE. The *Medical World* gives this: Cod-liver oil, 2 oz.; honey, 2 oz.; lemon juice, 2 oz. One to two teaspoonfuls three times a day.

THAT MAN QUIGLEY says I invented a feeder and then let my own bees starve. But he's improving the *Missouri Bee-keeper* so much that I forgive him.

IF HOUSE-APIARIES should come into general use, "invalids and women" would have to seek something other than bee-keeping as an outdoor occupation.

THE *Apiculturist* is catching it from the *B. B. J.*, which thinks Hutchinson didn't come down hard enough on the *Api.* for being a "big booming circular."

FROM NO COMPRESSION to thumb-screws is a pretty big jump, E. R. I'll not go to either extreme at present, but be "mejum" and give wedges a fair trial.

IF HORSES OR COWS are smart enough to unlatch a gate, just put on two latches and you've got 'em. They can't unlatch both at once, and you can.—*National Stockman.*

C. J. ROBINSON, in *American Bee-keeper*, thinks I "assume" when I give Langstroth credit for inventing a frame surrounded by a bee-space except at the point of support. If I assume in that, what a lot of "assumers" there must be!

MRS. JENNIE ATCHLEY says, in *Missouri Bee-keeper*, "When a person thinks he or she can tell what a queen is altogether by her looks, I am here to tell you that such a person is simply off his base." Your head's level, Jennie, no matter how you put up your back hair.

THAT INCIDENT on page 737, of the bees getting out in hauling, I read with intense interest, nearly holding my breath till I reached the outcome. I've been there myself too often.

"HANDLING HIVES MORE and frames less" doesn't suit me. I'd rather spend an hour handling frames than hives. The thing I'm after is handling *hives and frames* less. Guess that's what E. R. is struggling after too.

CANADIAN BEE-KEEPERS should have a law passed prohibiting D. A. Jones from working at any thing else than bees. When he's held right down to it, Bro. Jones is a good editor, as the improvement in the *C. B. J.* shows.

WHAT AILED the summer, that the bees let up so early on storing? Was it too cold? It was a remarkably cool summer; but to make up for it we have in the last half of September the hottest kind of summer weather.

THE WEATHER takes up so much room in the *British Bee Journal* as to astonish an American reader. But then, American journals would do the same thing if they had any thing like the same kind of weather for the whole country.

WHEN DRIVING, does your horse switch the line under his tail? Just cross one line over the other twice, and he'll not get the lines under his tail very often; and when he does you'll not pull him clear out of the road in getting them out.

PUNIC BEES, while so highly praised by those who sell them, have strong insinuations thrown out against them by British bee-keepers, as being in the line of humbugs. As yet, I can only say that, in appearance, they are decidedly different from all other bees I have seen.

WHAT MADE YOU haul home your bees from the Shane yard so early, friend Root? They surely could have something to browse on there more than at home. I may be wrong, but I have always left my bees in the out-apiaries as late as possible—only so they had time for one fly before going into winter quarters.

MRS. HARRISON, in *A. B. K.*, supposes "I don't know" whether the six or eight barrels of sugar I fed to my bees was a paying investment. Now, Mrs. Harrison, I think I do know something once in a while, and that's just one of the times when I do know. Without feeding, a good many colonies would have died which gave me a fair share of the 8000 or 9000 pounds of surplus.

THE *British Bee Journal* says: "If, say, a third of the center combs, with brood, queen-cells, and adhering bees, are removed bodily from the parent hive, and replaced with foundation directly a top swarm has cleared out, the latter may be returned the same evening, and will rarely come off again." I don't know whether that would work in this country, but I'm afraid.

CHESHIRE THINKS that there is something in the old-fashioned idea of making noises to induce a swarm to settle. He thinks bees choose quiet times—notably Sundays—for swarming, when they can hear the queen. But then comes the old question, If the din makes them settle because they don't hear the queen, why don't they generally settle when they come out with a clipped queen, which they surely don't hear?

WAX SECRETION.

E. FRANCE GIVES SOME INTERESTING EXPERIENCES, PROVING THAT OLD BEES DO SECRETE WAX AND BUILD COMBS.

I have been trying to find out just when bees secrete wax, and some other matters. That the reader may perfectly understand me, and what I have to say on the subject, I want you to read several articles in back numbers of GLEANINGS. First, one by Prof. Cook, 1891, page 212. There you will see that he thinks wax is not secreted unless it is wanted to build combs. Now, this is just what I think about wax secretion: That wax is not secreted unless it is needed to build combs. But, how is wax secretion brought about? Can the bees secrete wax any time it is wanted for comb-building? I believe they can, and will try to prove it further on.

Now turn to April 15th GLEANINGS, page 318. Here we have another article from Prof. Cook on this same subject, followed by my ideas in the same line. You see I take the ground that, in order to secrete wax, the bee fills her sac full of honey, and then remains quiet, and wax secretion goes on as a consequence, just the same as a pig fills his sac with corn and then remains quiet and secretes fat.

Now turn to May 1st number, page 359, to Prof. Cook's "Nubbins." He says he thinks France makes a good suggestion regarding wax secretion, and says he shall try some experiments to prove or disprove my theory. I hope he has done so, and that others have also, as I don't want to stand alone in this matter.

Now we will turn to page 421, May 15th number, "Fragments," by Bro. Doolittle. You see he agrees that wax secretion is brought about by the bees holding their honey; but he says that the old bees returning from the field give their loads of honey to the young bees, and that these young bees hold these loads of honey till they are sufficiently evaporated to be deposited in the cells; hence it comes about that it is the young bees very largely that secrete wax. Hold on, Bro. Doolittle. Let me ask whether the bees in your one-comb observatory hive were building comb at that time. If not, what did those young bees do with the wax secreted while holding those loads of honey? Do the bees evaporate their honey by holding it in their sacs? I think not, unless they have no other place to put it. If evaporation of honey was brought about in that way, then wax secretion would be going on all the time, whether the bees wanted it or not. I have seen bees take honey from one another in that way; but how do you know that it was *young* bees that received the honey? I can not tell a young bee from an old one, unless in case of a very young one just hatched, young enough to be white.

Now let us look at the next fragment by Mr. D., about old bees secreting wax. Read this carefully; and then if you have also read all the other articles mentioned you will be ready for my experiment, which I will now proceed to give you.

On the 10th day of June I hived a good fair-sized swarm of bees to experiment on, and prove, as far as possible, how old bees will live, and also whether they ever get so old that they don't secrete wax. I gave them 9 full L. frames of combs. I took them out of my comb-room, where they had been kept since last fall, so there was no brood in them. I also gave them 9 L. frames with one-inch foundation starters above the combs, and 8 L. frames with one-inch foundation starters below the combs. The bees were working very strong at that time on honey-dew. June 19th the upper set of frames were full of combs, and they were building nicely in the lower set. At this time I extracted all of their honey, but did not weigh it. July 1st I extracted 40 lbs. of honey. The whole three sets of combs were full of honey and brood. It was then 21 days since the swarm was hived. Then I took away *all of their brood*, and there was not a bee hatched at this time. In place of the brood-combs taken out, I put in empty frames with inch starters of foundation. July 11th I took out one comb of honey, 5 lbs., and sold it to a neighbor who wanted some comb honey very much, and gave the bees one more frame with foundation starter. July 20th I took all their combs away and gave them six full combs of honey. Mind, the combs contained no brood— positively nothing but honey. Why did I take all of their combs away on the 20th? For the reason that every comb in the three sets contained brood, more or less, so I had to take them all to get all of the brood. At this time our basswood honey-flow was over. I now, July 20th, reduced their space to two stories—upper story six combs of honey with two empty frames with foundation starters, and eight frames below with foundation starters; and now that the honey harvest was over I gave them two three-pound feeders full of honey, so they can have plenty of honey for wax secretion.

July 25, according to Mr. Doolittle, all the bees should be dead; but instead they are alive, a fair working colony, and are building combs rapidly—have eggs in one of the new combs, and eggs in one of the honey-combs, whence they have removed the honey. August 3d I reduced their space to 8 L. frames, and took away all of their brood again. This makes three times that they have been robbed of their young ones. It looks too mean, when a queen has worked so hard to build up a family, to rob her in that way. Of course, the brood is given to other colonies, so there is no loss.

Now, Aug. 3d, the hive contains four combs of honey, four empty frames with inch foundation starters. The empty frames are put between the honey-combs.

Aug. 15th I looked at the bees and fed them. Since the 3d they have built comb in all of the four empty frames. One of them is a fourth full of comb; the other three are half full, and have brood in two of them. Some of the brood is capped over. The bees are at work every day when others work. They gather pollen, and appear to carry loads of honey; but it may be water. It is now 21 days since they should all be dead, according to Mr. D.'s standard; but instead there is a fair colony for a one-story hive, and they are building combs yet. I am afraid that I shall be compelled to take their brood again.

Aug. 24th I examined the bees and found enough alive to warrant further experimenting. I took away four combs that contained brood. Three of the brood-combs were built since Aug. 3d. One of these was built half way down. The other two new combs were each two-thirds of a full comb. I now reduced this space to five L. frames. One of the frames was empty, with a one-inch starter. I put the empty frame in the middle, between the other four combs. Aug. 28th I put in another empty frame with a one-inch starter of foundation. Sept. 10th I looked at the bees again. They are a fair working colony yet. The frame put in Aug. 24th is two-thirds full of comb, and the empty frame put in Aug. 28th is half built, and both new combs are nearly filled with brood as far as they are built. They have now been working steadily for three months, secreting wax and building combs 90 days—just double Mr. Doolittle's time, and I am not sure but they would pass the winter if allowed to hatch the crop of brood that is now coming on. They don't dwindle away very fast. What kind of bees are they? Very near pure Carniolans, from a queen that I bought of John Andrews, Pattens Mills, N. Y. I don't know whether the kind of bees has made any difference; but it is the kind of stock that I have in my home yard. But, one thing I do know—my home yard has stored double the amount of surplus honey of any other yard we have.

Now, what have I proved by this experiment? Just nothing, positively. Here it is 90 days since this swarm was hived. There is quite a lot of bees there yet building combs and raising brood. But, are the bees that are there now a part of those that were hived there the 10th of June? If they are, they are 90 days old at least. I do know that there has not a bee hatched in the swarm since they were hived. But I do not know but that young bees from other hives near them may have joined them in sufficient numbers to keep up the stock to its present working condition.

Now, if I have not proved any thing I have learned how to prove the point that I was driving at; and if I live until another year I will try it again. I propose to hive a swarm as early as I can get a good one, and then place it 20 rods at least from any other bees, so as to be sure that no other bees would join them; then take their brood away often enough so they can not get recruits, and then see how long they will live. I hope others will try some experiments of this kind.

If any one has any suggestions to make I should be glad to get them. Prove all things yourself. E. France.

Platteville, Wis., Sept. 14.

[See editorials.]

RECORD-BOOKS AND MEMORANDUM PAPERS.

THEIR CONVENIENCE AS VIEWED BY A CALIFORNIAN.

I was much interested in what Miss Emma Wilson had to say about record-books. She gets away with Mr. Root's argument in good shape. I will add that I have depended entirely on record-books for seven years, and have not lost one yet. It would be a serious matter if the book should get lost; but the advantages are so great that it pays to take the chances. I indorse all Emma says in their favor, and wish she had said more. I wish she had given us a page from the book, so we could get the plan, and see how much space is devoted to each colony. And wouldn't it be interesting to see one of the memorandums which Dr. Miller makes from the book, while going to the out-apiary—of work to do when he gets there? Just think of having to run all over the apiary to see which colonies need attention, when you can do it in one-fourth the time sitting in the shade or in a buggy! Cards and slates might do for a very active man; but for one who wishes to take things a little easy, and still get there on time, the book is indispensable.

Mr. Root comes out ahead in Aug. 15th Gleanings; and the question is now like the one in the Question-box on the same page, with regard to buying books or going to the convention. It is more economical to buy the books; but you really need both. I have often felt the need of some memorandum on the hive to tell whether the colony has filled several supers, or has been all the season filling one super. A colony that has been all the season filling up should not be extracted late, for it would surely starve if not fed; and how are we to tell which are the best colonies to breed from unless we know how many supers each colony has filled? I think I should want a slate about as large as a postal card, tacked on top of the hive so I could read it, and write on it without holding it. You are obliged to visit each hive in the apiary once a week or oftener to see if it is full of honey, and you might just as well have your honey memorandum on the hive; but other conditions are irregular, and it is not necessary to go to every hive in the apiary because twenty colonies are queenless; better have a memorandum of the twenty colonies, and go directly to each one and attend to it. I have dispensed with queen registers on each nucleus, because I could not see the whole at once, as it were, and know just where to go for what I wanted, and adopted a system of memorandum which I carry in a light paper clip with a pasteboard back. I give below a memorandum of 20 nuclei for one month, so you will see how it is done. You will see that the plan is to write the number of nucleus down the side, and the condition along the top of the page, and the day of the month where the two lines come together. It requires three sets of names to run a whole month; and one sheet of letter paper is plenty large enough to keep the record of 20 nuclei for 31 days. Now, suppose I want some laying queens. Instead of running all over the apiary and reading all the slates and cards, I run my eye down the two last laying columns, and find that numbers 1, 4, 9, 14, 15, and 18, contain laying queens, and I go straight to the hive for them. You will understand that all the figures except the first column, which is the number of the hive, are the days of the month on which the hive was examined; and I claim that it is easier and quicker to put down one or two figures, in the column which represents the condition of the hive, than to manipulate the pins of a queen register on the hive. Now, suppose I go over 100 nuclei with queen registers, and mark the condition of each nuclei on the registering card; when I get through I have forgotten which hives have laying queens and which are queenless, and must run over the apiary again to find them. With this system you have the

AUGUST.

No.	Cell.	Strain.	Virgin.	Laying.	Removed.	Cell.	Strain.	Virgin.	Laying.	Removed.	Cell.	Strain.	Virgin.	Laying.	Removed.
1	3	S	5	15	17	19	A	21	31						
2		H		3	5	8	I	10	20	20	22	S	24		
3		F	3	12	13	15	S	17	27	31				31	
4	3	S	*5			5	A	7	17	18	20	I	22		
5	3	A	5	†15		15	I	17	27	29					
6	5	I	7	17	19	21	S	24	†27		27	S	29		
7		H		3	5	7	H	10	19	20	22	H	24		
8		I	3	8	8	11	H	13	22	22	25	S	27		
9	5	I	7	†17		17	A	19	29	31					
10	3	A	5	15	17	19	A	21	31						
11	1	I	3	15	15	17	A	*19			21	H	24		
12		I	1	8	10	12	S	14	24	26	28	S	30		
13	3	H	5	15	19	21	H	24							
14	5	A	7	17	17	20	A	22	31						
15	1	I	3	15	17	19	I	21	31						
16		H		1	3	5	S	7	17	19	21	S	24		
17		S	1	8	10	13	I	15	25	27	29	H	31		
18		H	1	10	10	12	H	*15			17	H	19	29	31
19	3	S	*5			7	A	[illegible]	19	20	22	S	24		
20	1	F	3	13	15	17	A	*19			20	I	22	31	

* Torn down. † Lost.

condition of every hive in your hand in the most condensed form, and can go straight to a hive having a laying queen, if you want one, or to a queenless hive, if you have a cell to put in, and no false moves are made, and no unnecessary steps taken. I rear all my queens now by placing the Doolittle prepared cells in the brood-chamber of colonies that are superseding their queens; and the young queens bred from the best in the apiary are so large and fine it makes me feel happy. J. F. McIntyre.

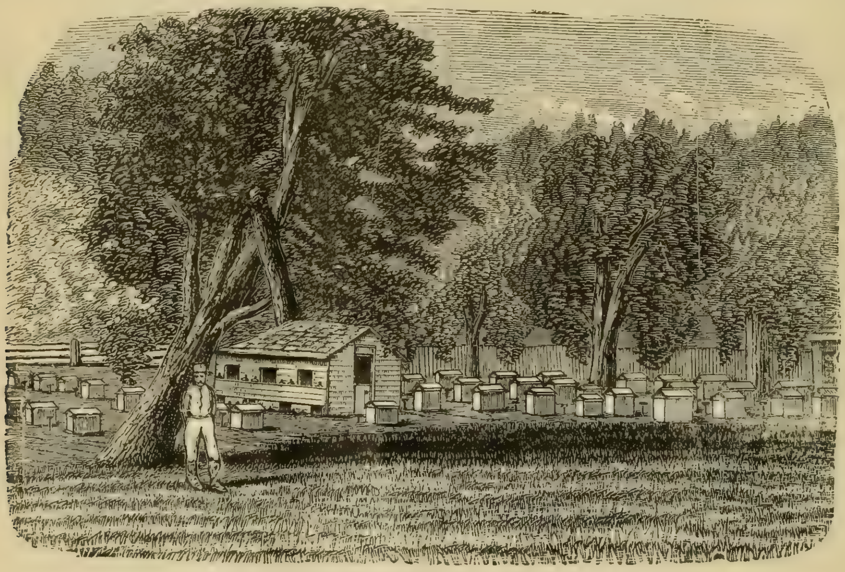
Fillmore, Cal., Sept. 1.

[You have scored some good points for the record-book. The system as you use it may be much better than ordinary records made on the hive where the position of the slate does not indicate any thing; but where the *position* of the slate, tablet, or card on the hive-cover indicates whether the colony is queenless, or possessed of a cell, virgin queen, laying or tested, I think I should still prefer the slates. The system which we use is a written record on slates, and the same indicated by the position of the slate on the hive-cover. From any part of the apiary I can tell at a glance which colonies are queenless, which ones have cells, which ones have virgin, laying, or tested queens. There are advantages in both systems. With the record-book it is possible to say which colonies need attention, even though they may be miles away.] E. R.

A VISIT TO "SUNNYSIDE."

WHERE SPANISH-NEEDLE HONEY IS PRODUCED.

Having just returned from a visit to the Sunnyside apiaries of Hon. J. M. Hambaugh, one mile north of Spring, Brown Co., Ill., I thought perhaps a few lines relative to what I saw and learned while there might be of interest to some of the readers of Gleanings.

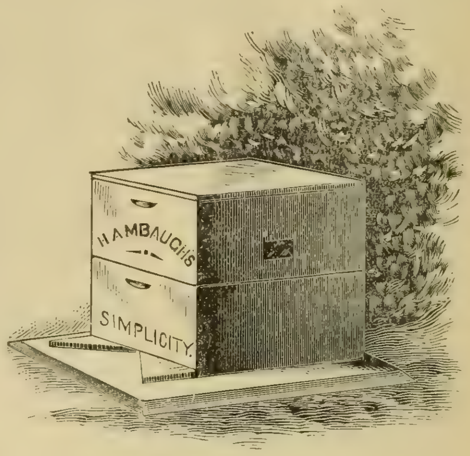


HOME APIARY IN 1885.

This engraving was made in 1885, and shows the home apiary as it looked then. A house-apiary is shown in the engraving, which Mr. H. used at first, but afterward abandoned, setting his hives in rows upon the ground.

THE HIVE.

Mr. H. uses two styles of hive—the Quinby, eleven-frame, and Langstroth-Simplicity, ten-frame, but rather prefers the Quinby with a seven-inch super, for extracting. Both hives take the hanging frame, and each hive has a spacing-wire, *a la* Dadant, in the bottom, which spaces the frames about right below, and greatly assists in keeping them in place while the hives are being hauled from one place to another.

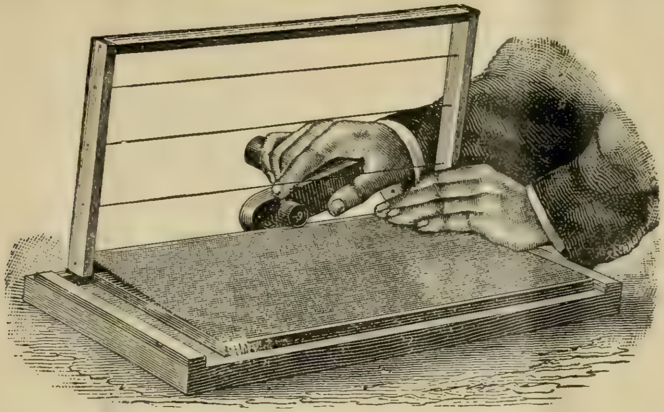


HAMBAUGH'S SIMPLICITY.

This is a good representation of his Simplicity hive, except that it does not show the sloping alighting-board. This hive Mr. H. recommends above all others for the average bee-keeper; and his advice seems to be heeded, for he manufactures more of this style of hive than of all others put together.

HIVE-FACTORY.

Mr. H. owns and operates quite an extensive hive-factory, and turns out annually a large number of hives, feeders, and other apiarian appliances for the trade.



HAMBAUGH'S FOUNDATION-FASTENER.

He also makes and sells the celebrated Hambaugh foundation-roller, as shown in the engraving, for fastening foundation in brood-frames—a very useful tool of his own invention.

OUT-APIARIES.

Mr. H. has, at present, about 250 colonies of bees, and has them divided into four lots, making three out-apiaries, and one at home, all of which are run for extracting. As a great many of his neighbors keep bees, he considers 75 colonies the largest number that should be kept in one place, and thinks a less number would do better. By thus dividing them up he thinks he is amply repaid for the extra labor it entails. He also practices

MIGRATORY BEE-KEEPING;

and each year, about the first of August, he moves all the bees, except a portion of the home apiary, further out in the great Illinois River bottom, where they have access to thousands of acres of Spanish needle, goldenrod, August flower, heart's-ease, etc., in consequence of which his fall crop of honey is generally abundant. The home apiary, and out-apiaries as well, are situated on the extreme western edge of the bottom lands, and hence the necessity of moving in order to get the best results from the fall bloom.

MOVING THE BEES.

Before moving the bees from their stands, a ventilator is placed on the top of each hive. This consists of a rim 2½ inches deep, with an opening one inch wide, and nearly full length of the sides and ends, and covered with wire screen. A piece of lath is placed upright on each side of a hive, and nailed midway to the lid and bottom-board. A strip, 1½ inches wide, and three inches longer than the entrance, with an opening cut on one side to match the entrance to the hive, and a strip of wire screen tacked over this opening, is used to close the entrances. As soon as the bees cease flying, one of these is tacked over the entrance of each hive with two small nails, when the same is ready to be placed upon the wagon. The wagons used in hauling have racks made for the purpose, holding 16 hives each. All the hives are loaded on the wagons the same evening they are prepared, and on the following morning before five o'clock are on their way to "pastures new."

IN THE LEGISLATURE.

Last fall Mr. Hambaugh was elected to represent his district in the State legislature; and, be it said to his credit, he improved the opportunity to render valuable service to the bee-keepers of his State. He originated, among others, two important bills for the benefit of bee-keepers, one of which became a law, and was published at length in Aug. 1st GLEANINGS; namely, the bill appropriating $500 for publishing the annual report of the Illinois Bee-keepers' Association. The other is entitled "Spraying Bill," which passed the House but was tabled in the Senate. The bill was published in GLEANINGS for April 15, page 326.

Quincy, Ill., Sept. 2. W. J. CULLINAN.

[We are very glad to give this sketch of Mr. Hambaugh and of his business. It is indeed fortunate that the Illinois bee-keepers have in the House of Representatives so able a champion. It would be very pleasant to have an appropriation in a similar way for the National Bee-keepers' Association. We may never have it, but we entertain the hope that we shall have some time.

In our trip through Illinois we had a very pleasant chat with Mr. Hambaugh, and in between sessions at the Keokuk convention. He is a very modest man, and we were very much surprised when the news came, a few months ago, that he had been elected as a member of the House of Representatives for the State of Illinois. We are glad that he is not only a good member in his official capacity for the State, but an excellent bee-keeper. There is many another successful bee-keeper who is also fit for the halls of our legislatures.]

THE ALLEY AUTOMATIC SWARMER.

HOW SOME SIXTY OF THEM WERE TRIED AND FOUND WANTING.

In response to your call for reports concerning the Alley automatic hiver, I submit the following:

In the year 1889 I purchased a number of the queen and drone traps, and found them useful in hiving new swarms. In 1890 the automatic hiver seemed to promise so well that I purchased 50 as a trial venture. That year being an extremely poor one in this locality, though a few purchased them, no one had a chance to give them a trial. I could not try them myself that season, as I had not a single new swarm.

This spring, after selling the rest of the fifty, I sent for 25 more, about half of which have been sold, so that there are now in use between fifty and sixty among my customers.

I have not from this number had one really favorable report, but a number have reported unfavorably. A common complaint is, that the hiver becomes so clogged with drones as to interfere with the passage of the field workers.

Early in the season I placed three on the three strongest out of ten strong colonies belonging to a neighbor. Those colonies cast no swarms, though all the others did so. While most bee-keepers have had a fair amount of swarming, it has not been an old-fashioned swarming season, or I should be inclined to recommend the hiver as a non-swarming device. I have noticed the same effect in my own yard, where hivers were early placed on colonies showing strong signs of swarming. Days went by before the swarms issued, and then the bees went back instead of into the new hive prepared for them. It was ten days before they came out again, probably with a new queen. That time the hiver was off, so they were gathered off a tree. The next time a weak swarm was caught, the most of the bees returned to the old hive. At another time, with an after-swarm, several young queens got through the hiver, rendering it of no use in that case.

The later form of the hiver may be made to serve an important purpose, aside from its main object. The two small sections, with perforated zinc in the front, may be used in retaining swarms after they have been hived.

I am very sorry that I am not able to make a favorable report on the hiver. A device that will effect its purpose every time will be eagerly purchased by the farmer members of the bee-keeping fraternity, especially as it will enable them to keep bees without interruption to other work in swarming time, and consequent loss of time demanded by other interests.

I hope Mr. Alley may yet give us a really practical hiver; but this one, at least with me so far, does not fill the bill. M. S. West.

Flint, Mich., Aug. 24.

[This report may be exceptionally bad, but it rather strikes us that these automatic swarmers were boomed pretty heavily before they were even tested. If the majority of the others who have tried them have had similar failures, it means a big disappointment.]

ENEMIES OF THE HONEY-BEE.

READ IN WASHINGTON BEFORE THE A. A. A. S.

The foes of the honey-bee are more numerous than would be supposed. We find them among the highest class of animals, and also among the lowest of all organisms. Three classes of vertebrates contribute to the group; many insects are included, while one of the most deadly of the microbes finds a rich pabulum in the brood of the honey-bee.

Among mammalia, bears, except that man has so nearly exterminated the species, would be counted among the honey-bee's worst foes. Bruin braves the anger and attack of the bees, impelled by an exceeding fondness for honey. The dense hair and thick epidermis serve well to fortify for the most part against the stings. In some experiments with a tame bear it was found that she would never hesitate to satisfy her taste for honey though the latter were guarded by scores of bees. The bear would close her eyes and rush to the feast. The shutting of the eyes was not simply an expression of satisfaction, but, rather, to protect them, as she never closed her eyes when given a bottle of honey to suck. In taking the honey from the hive, the frequent head-shakes proved that she had to take the bitter with the sweet.

The shrews and mice are serious enemies. These, however, make their attack in winter, when the semi-stupor of the bees prevents any considerable resistance. Owing to their minute size these little mammals, especially the shrews, are able in almost every case to gain access to the hive. Whether or not these animals eat the live bees, I am unable to say; but they certainly eat the dead ones, and so gnaw away at the combs, in their search for the pollen at the base of the cells, that they often fall in one shapeless mass at the bottom of the hive. Very likely the irritation consequent upon such disturbance kills the bees, which are afterward devoured.

The king-bird, one of our most rapacious fly-catchers, is a very serious enemy of the honey-bee. This bird, I dare say, would not refuse a large sleek drone; but that it confines its attack to these is certainly not true. I have taken worker bees from the stomachs of these birds several times, after watching it capture the bees. The bird flies from some convenient perch near the apiary, snaps up a bee, returns to its perch, works a moment with the bee, when the latter is swallowed and the whole operation repeated. I have wondered whether the manipulation to which the bird subjects the bee just prior to swallowing it renders the latter unable to sting, or whether, as in the case with the toad, the bird receives a sting for every bee swallowed. The fact that a bee will sting, with opportunity, for hours after the head is removed, or even the abdomen cut in two at the middle, makes it seem impossible that the king-bird could handle the bee so dextrously, except that it were wise enough to extract the sting, so that the bee could not sting; and yet the motions always observed just before the swallowing act are significant. Why is not the bee swallowed at once? Of course, this interesting question could be easily settled by a careful examination of bird and victimized bees—a thing which I shall surely do upon the first opportunity.

The toad is no mean enemy of the bee. As evening approaches, or even on dark cloudy days, this rough-skinned batrachian sets himself near the entrance of the hive, and, by aid of its long viscid tongue, will catch and swallow a dozen bees in a very brief time. I have often seen this interesting performance. Once, after a toad had taken five bees in succession, I took the toad, examined its stomach, and found therein five stingless worker bees. I then examined the toad's throat, and found all the five stings sticking in this vital cushion. Is the toad callous to these venomed pricks, or is he a sort of martyr to his love for the bee and its load of sweet? As I could never see any scowl or wince, I have imagined that the toad, unlike the bear, was not very sensitive to such venomed stabs.

The insect enemies of bees are quite numerous. Among the bees, a species of *andrenæ* often enter the hives in the spring as pilferers. Often the bees pay no attention to them, though a honey-bee from another hive enters at its peril. I have wondered whether these *andrenæ* could have a protective scent, or whether they are regarded by the bees as too insignificant to excite either alarm or apprehension. Species of bombus also enter the hives—usually, however, only when the hive is opened, as the entrance is commonly too small to permit ingress. Once in, and the hive closed, the bumble-bee receives rough treatment. The bees attack it and soon rob it of life and its hairy covering.

They attempt to drag its great carcass from the hive, but, unable to do this, they show their respect for size by proceeding at once to give it decent burial. This is effected by covering it with propolis, or bee-glue. Often I have seen the dead body of a mouse similarly sealed within the hive. Is not this a kind of sanitation?

A species of apathus, which also enters the hive of the honey-bee without any resistance, is, as I have reason to believe, a worse foe than is *andrena*, as there is considerable evidence that these bees breed in the hive. I have received specimens of these bees from a very intelligent bee-keeper of Indiana, who reports that this cuckoo-bee certainly breeds in the hive. If this is correct, it is a very interesting case. I hope soon to have positive evidence on this point. The fact that many of the cuckoo-bees were seen in the hive, and acted entirely at home, seemed to confirm this theory as the correct one.

In America, wasps are not serious enemies of the honey-bee. I have received from the South the large handsome *Stizus speciosus*, Drury, with the report that it had caught and killed a honey-bee. I think such depredations, even in the south of the United States, are much less frequent than in Europe and Asia. Of the family *Mutilidæ*, the cow-killer of the South, *Sphæro-aphthalmus occidentalis*, Linn., is no mean enemy of the bee. This beautiful insect has no apparent fear of bees, and is very free to attack them. Probably its densely chitinous body and very powerful sting make it an overmatch for the honey-bee. I have this very hairy ant-like insect from Kansas, Mississippi, and Florida, in all of which States it has been seen to attack and kill bees. It is a very predaceous insect, and doubtless is more our friend than enemy.

Various species of the family *Formicidæ* attack bees. In the North, ants do no harm, except to gather on the top of the inner cover of the bees, seemingly for warmth. Occasionally they annoy or irritate the bees to some slight extent. In the South, ants often kill the worker bees, and occasionally the queens; at least, it is so reported.

Ants are easily poisoned, and may be killed at wholesale by applying bisulphide of carbon to their ant-hills.

Among dipterous insects we find bee-enemies in three families. Without doubt the robber-flies, *Asilidæ*, are the chiefest offenders. These terribly predaceous insects are well denominated bee-killers. They are most destructive in the South. There are several species that are known to kill bees. These belong chiefly to the following genera: *Erax*, *Promachus*, *Asilus*, and *Mallophora*. These often do serious damage—so much so that, in some parts of the South, boys are employed to kill them, which they do by the dextrous use of the whip. The habit of these flies reminds us of the king-bird. They pounce upon the bee, grasp it while on the wing, by use of their feet, and repair to some resting-place, where they deliberately suck their victim's blood. Scores of bees may be destroyed in a day by one of these rapacious flies.

The bee-louse, *Braula cœca*, of the family *Braulinidæ*, has been frequently introduced into this country from Italy and Cyprus, on queen-bees; but from the fact that it has given no trouble—indeed, is rarely seen in the United States—it would seem that our climate must be inimical to its well-being. It can hardly be called an enemy of bees on this side of the water.

Among lepidopterous insects, the well-known bee-moth, *Galleria cereana*, Fabr., is a generally recognized enemy of the honey-bee; yet it is usually powerless to injure any but weak colonies, especially of the yellow races of bees. Though called the wax-moth, it really feeds mostly on pollen, though it cuts the comb in a ruinous fashion, as it tunnels through and through it in search of its real food. It is not considered a serious enemy by any well-informed bee-keeper, but will often do serious mischief to weak colonies of bees by matting, soiling, and tunneling the combs, and in this way exciting and dispiriting the bees. It is also ruinous to exposed combs, and thus makes caution on the part of the bee-keeper an imperative necessity to success. A. J. COOK.

Ag'l College, Mich.

To be continued.

ARIZONA.

SOME QUESTIONS ANSWERED—SEE P. 628, AUG. 1.

Notwithstanding my request that all questions relating to my communication on Arizona be sent to GLEANINGS, I have been fairly deluged with letters from all parts of the Union—from Maine to California, and from Oregon to Florida, demonstrating the extensive reach of your publication, and its consequent value as an advertising medium. It also shows the enterprising character of its readers, and, what is better than either, the sterling worth of the paper itself; for, as I understand, your circulation is not maintained by the offer of premiums, but rests entirely on the merits of its contents. I think this is due largely to the fact that you do not confine yourself to bees alone (for this one subject, with the lapse of time, necessarily becomes "hashy"), but, on the contrary, you embrace many live subjects of practical importance to men and women of all stations and callings in life.

Some of the letters received I have turned over to editors and real-estate agents who have promised to mail papers and pamphlets fully answering the questions propounded; others I have answered by letter, and the rest to date I will endeavor to answer in this letter.

Right here permit me to suggest, to all who contemplate emigrating, the wisdom of visiting this country and seeing for themselves before breaking up their homes. If your means will not permit this, and you enjoy good health and reasonable prosperity, it is often wise to stay where you are.

To the question, "Which pays the better, bees or fruit?" we unhesitatingly answer, fruit pays better than any thing else; but honey, vegetables, etc., pay well enough to maintain you while waiting for your orchards to come into bearing. An orange-grove in full bearing is worth from $1000 to $2500 per acre, for the net proceeds from the sale of the fruit will pay 10 per cent interest on those sums, and this is the general rule in determining the true value of a grove. I have now before me a letter from a nephew residing at Riverside, Cal., who reports an orange-grove of ten acres just sold for the sum of $25,000 cash. I have known ten acres of grapes to yield a net profit of $2400. Ten acres well cared for is amply sufficient for the maintenance of a family of ordinary size. For paying crops of oranges one must wait four or five years after setting out the trees, the time of waiting depending much on the size of the trees when taken from the nursery, and the care bestowed on them afterward. Figs, apricots, peaches, nectarines, and other fruits of that class, require about three years to yield really paying crops. Grapes pay well in a year and a half after setting out the *rooted* vines;

but where cuttings are used it will require about two years for the same result.

There are no fleas or bedbugs here, and very few mosquitoes; but at certain seasons the flies and ants are rather bad. The former we screen against, and the latter are most effectually destroyed by flooding and drowning. Lizards and horned toads abound, but are perfectly harmless; and, besides, they are useful in destroying insects. Scorpions are very scarce, and I have not yet seen a tarantula here. We occasionally meet with the large yellow rattlesnake; but as "every man's hand is against them," they are fast disappearing. The abundance of jack-rabbits renders it desirable to fence orchards and vineyards with poultry-netting, from the ground upward for from 2½ to 3 feet. This, with a barbed wire above, makes a fence which is durable, and proof against every thing that can not fly. The posts are usually cottonwood-trees, which grow rapidly, and soon afford a fine shade, and make the best kind of windbreaks.

Quails, doves, blackbirds, and, indeed, nearly all species of the feathered tribe, abound in this valley, and occasionally do considerable damage to fruit crops; but by destroying all nests, and by the general use of shotguns, they will gradually disappear.

The Indian question is hardly worth considering. I have not yet seen an Apache. The Maricopas and Pimas are small tribes whose reservations are from twelve to twenty miles away. They are self-supporting, very friendly, and it is their boast that they have never yet killed a white man; but they are the mortal enemies of the Apaches.

As to fish, they are plentiful in the river and canals; but any one having a little land can easily and inexpensively have his own carp-pond.

There is no government land left in this valley. Town lots in Phœnix are 50 by 150 feet, and vary in price from $150 to $1200, according to location. Unimproved land, from two to ten miles from Phœnix, sells at from $100 down to $25 per acre, water included, the price varying with its distance from town. Very fine land can now be obtained within from five to six miles of Phœnix at from $40 to $75 per acre.

Our school system is of the best, being modeled after California's. School year is eight months, compensation $75 per month. The examination of teachers occupies three days; is critical, and the standard high. The applications always greatly exceed the numbers employed. The cost of living here is, on the whole, about the same as in the Northern States.

Do not bring bees, as the cost of transportation would equal or exceed their price here. Our home market for honey and other productions is limited, and large producers ship their overplus to other localities. We have as yet but one railroad, the Phœnix & Maricopa, which intersects the Southern Pacific Railroad 30 miles south. The necessary papers are already signed by the Santa Fé company for the construction of a north and south road from the Central Pacific to this point, which will probably be completed within the next two years; and as it will pass near the second largest pine forest in America, lumber, which is now worth from $25 to $45 per 1000, will drop to reasonable prices; and the enormous freight charges now demanded by the Southern Pacific will drop off a half, and at the same time real estate will surely advance to probably three times the prices now asked. Why not? Ours is a still milder climate than that of Southern California. We produce all that they do. Our fruits ripen from three to six weeks earlier, and we are 500 miles nearer the eastern market. Lawyers and doctors will not find this an inviting field; but to energetic men and women who desire to build up prosperous and happy homes, I know of no country offering better inducements.

Phœnix, Ariz. A. J. King.

[Friend King, we are glad of this second letter of yours, as it modifies somewhat some of the encouraging things you said in your other one. Permit me to add a word here in regard to those orange-groves worth $2500 per acre. I saw just such groves while at Riverside; and I saw some that had recently been sold for large sums of money. Now, I think I am right when I say there is only occasionally a man who has enough energy, and love for the business, to manage successfully an orange-grove *after* he owns it. It is exactly like the fruit-farms of the Eastern States, that yield great results. It is the result of hard work and brains; and right in Riverside—or, at least, not many miles away—there are hundreds of orange-groves going to ruin and decay because their owners hadn't energy or interest enough in the business to give it the necessary care. Great sums of money have been made from single acres of strawberries; and almost every locality can furnish one or more examples of what may be done by an enterprising man; but it takes the man to do it, after the locality has been found. In the article following this we have a very truthful statement from a resident, in regard to the state of bee-keeping in Arizona at the present time.]

A. I. R.

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ARIZONA AS A HONEY COUNTRY.

SOME CORRECTIONS.

In the August 1st number of Gleanings, Mr. A. J. King, of this valley, has an article in regard to this country and its honey-producing capacity. Mr. King is a comparatively new comer, and, like all such, seems to see only the advantageous points of the valley, and to have them magnified in his mind. This valley has many good points, and, like all places on the globe, some poor ones; but I wish to write of it only from the honey-producer's standpoint. Mr. King's article would lead one who is unacquainted with our valley to overestimate its honey resources, both as to yield and the extent of our range.

There is no doubt that Dr. Gregg extracted an average of 480 lbs. of honey per colony from 12 colonies in one year; but that was years ago, before the land around his place was cleared of mesquite, and made mostly from that tree. There were no bees but his 12 stands in his vicinity, and it was an extra good year. Now there are very few localities where mesquite is found in any quantities near alfalfa-fields, and the country is full of bees. In the neighborhood where my apiary is situated, a circle five miles in diameter, with my apiary as the center, would contain fully 1000 colonies of bees; and the land within the circle, although only part in alfalfa, would contain the majority of that plant growing in the vicinity of Tempe. On the north side of the river, in the neighborhood of Phœnix, the range is nearly as thickly populated with bees. There are nearly, if not quite, 4000 colonies of bees in the valley now; and, as I said before, there is very little mesquite now, except on the desert, beyond range of cultivated ground, so that alfalfa is almost our sole dependence for surplus. The other honey-producing plants mentioned by Mr. King grow mostly out on the desert, away from the alfalfa, and so can not be utilized.

Of alfalfa there are from 18,000 to 25,000 acres growing in the valley; but of this a large number, probably the majority, of acres are kept pastured by stock the entire time, so that there is no bloom on it, and very little is being planted, owing to lack of markets for hay, so that the bee-range is not increasing as fast as the bees are.

In regard to yield, I can speak with some authority, and not from hearsay, as Mr. King evidently does, as I have been connected with our association, which ships nearly all the honey produced in the valley, and I know the number of colonies owned and amount of honey produced by nearly every bee-keeper of the valley. Dr. Gregg's yield last year averaged, according to his report, 90 lbs. of extracted honey, and it is less this year, owing to his range having been closely pastured.

The best average yield, both last year and this, was secured by W. L. Osborn, who reported about 160 lbs. extracted per colony, from nearly 200 colonies last year, and about the same so far this year. He has the best range in the valley. Mr. Osborn is a bee-keeper of many years' experience, and is up with the times, and I think he makes his bees yield as much as any one could.

The average yield of extracted honey per colony reported by our members varied from 75 to 160 lbs. Of comb honey, 50 lbs. per colony is considered a good yield.

The past two years which I quote were fully up to the average, if not better; so you see that Mr. King's 200 to 300 lbs. per colony fails to materialize when put to the test. In regard to the quality, I do not think he has overdrawn a particle, except in the case of a little mixed spring honey. Mr. Broomell, upon his return from Chicago recently, brought samples of clover and basswood honey, both comb and extracted; and while it is some lighter than ours in color, all who have tested both, side by side, pronounce our alfalfa or mesquite very much superior in flavor.

J. WEBSTER JOHNSON.

Tempe, Ariz.

CHIPS.

BY WOODCHOPPER.

Dr. Miller, please tell Miles Long that he is wrong, for bees don't swarm because it's s'warm, but because it's nature's way of increase and propagation; and if it is warm when they get ready, all right; but, on the other side, they often swarm when it's s'cool that they nearly starve, and the brood in the old hive has a narrow escape from chilling.

Queens of second swarms are no better than the one left in the old hive, and there is no better chance for a choice, for not once in 900 times do over half the cells hatch with the second swarm, or third either.

The Porter escape is not a success with me. It takes three days to get about two-thirds of the bees out, and the rest come out only after carrying to the honey-house. I can beat that by two and three-fourths days, and get the bees out five times as clean, on the average, without any escape.

NOT A SURE SIGN OF SWARMING.

The backward and forward movement on the alighting-board is no sign of swarming. Bees do it all the time some years during August, when they are not working at all. They do it sometimes, too, at swarming time; but they do it much more when they don't swarm at all.

WIDTH OF TOP-BARS.

You need not be afraid to reinforce your top-bars to 1$\frac{1}{8}$. It's only what they should have been at first. Just try a few hives; and when you know, tell us how they work spaced $\frac{5}{16}$ to $\frac{3}{8}$ apart.

DRONE COMB IN HIVES.

J. A. Green says it is practically impossible to keep all drone comb out of hives. I agree with him so far; but when he says he doesn't want any drone comb I disagree. Bees work better with a fair amount of drone comb than without. I have had hives with one-fourth drone comb, and they outstripped those with but little. This season I have had drone-cells built under the bottom and between the end-bars of frames where there was only room for one or two rows of cells, and lots of drones raised there.

PROPER PLACE FOR DRONE COMB.

I have always thought it should be in the outside frame or in the lower corners, so as to be as far away from where the queen was laying as I could get it, so she would be later in getting to it; but this summer I have made a discovery. It may be old, but was new to me. It is this: If three or four of the center combs have an inch strip of drone comb right close up to the top-bar it will be kept full of brood all the season, and no honey can be stored between the brood-nest and sections; so if they store any above it will have to be in pound sections.

FIXED FRAMES.

These are all right some of the year, especially for new swarms; but after the first year they are entirely unnecessary, at least for my bees, for they fix the distances so that there is no danger of their getting loose in wiring in handling. I formerly used the Durant hive, having closed-end frames, without any outer case except sides, and over 100 of them, for 10 years or more, but finally I fixed them all over to hanging or swinging frames; and as I now use them I don't want any thing more fixed than they are after the bees have had them a year; and if that is not sufficient for new swarms, a very simple arrangement can be made with two small strips the length of the hive crosswise and the thickness of the top-bar of frames. It is made by nailing one on the other, like a rabbet. To use, just as I want it I tack it down over the ends of the frames at each end, and they are ready for moving any distance by rail or wagon that bees ever ought to go; and to loosen them will not take over two seconds after the hive is opened. But please don't take this as an argument against fixed frames. Let anybody try some if they want to; but they will be like a new broom, and sweep clean for a time; but I very much doubt whether they will have much of a hearing five years from now. The same care that is necessary to get those closed ends together without killing bees will save more bees without the closed ends or fixed distances.

DON'T KILL THE KING-BIRDS.

J. W. Porter says they are an enemy of bees. Well, they do eat lots of drones, and I used to shoot them; but after opening many of their gizzards, and never finding a single worker, but some drones and a great many more bugs and beetles than drones, I came to the conclusion that they are one of our best friends—that is, of those that wear feathers, although they are not as showily dressed as some of them. In the instance of the bees stinging them, which he gives, I will say that any other bird would have fared about the same in the same place. There has been a king-bird's nest close to my bees every year for a long time; and as soon as the young ones were large enough to fly they would take up their position on a wire about eight feet high, which ran the whole length of the apiary, and stay there as long as drones were plentiful, the old ones catching them and feeding the young. I have seen the bees after the old one very often when they were flying; but they will chase robins or any other birds just as quick if they fly across the apiary; but the flight of the king-bird is of such a dilatory, part stand-still kind of movement, that the bees can follow them much better than swifter-flying birds like the robin, which will very quickly distance a bee's flight.

COOKED NUBBINS.

No, Prof. C., there is no connection between the cool weather and the small honey-flow. Some of the best yields I ever saw have been in cool seasons when there was almost no hot weather; but it must be moderately dry, any year, wet or dry, to get the best, although we see it every few days something like that. The weather is hot and rains abundant; the air is damp, full of electricity, just right for the secretion of nectar; but, friends, how many of you get much honey during such seasons? or if you do it will be thin and smarty, especially clover, which will almost strangle a person to eat it clear, while that gathered in dry weather will be smooth and rich, and much more palatable than the other, usually much more abundant, although the flow may be short if it gets too dry.

Now, Prof. C., do quit urging every farmer or fruit-grower to keep a few hives of bees, for all it will amount to will be to spoil the market for others who have no other business, or not much, and of very doubtful benefit to the farmer, who, if he has much of a farm, will have no time to fuss with or take decent care of a few hives of bees without costing him, in one way or another, more than it will come to. One specialist in any community will furnish bees enough to fertilize all the fruit free of charge, and get curses enough to satisfy any man who is satisfied with any thing reasonable in amount. One would think that the field of bee-keeping could not be enlarged enough, by the many suggestions made, that everybody should keep a few hives; and it does not look consistent, at least, to see it, and then hear the cry about glutted honey-markets and low prices which we are sure to have again just as soon as there is any thing like a full crop of honey.

THAT STRAIN OF ROOTING BEES

which J. H. Markley suggests, would not suit me; for, instead of spilling the honey, I should want to have them gather it up without spilling. It might be clearer, you know.

HONEY-DEW NOT GOOD FOR WINTER.

Several are inquiring about honey-dew for winter, and some of the replies are that it is good if of certain kinds; and another says it is not good if it is on beech-trees. I will tell here it is just as bad on oak or chestnut or hickory as on beech. I have had experience with it four years at different times, with always bad to much worse than bad luck every time. I lost 100 out of 200 one winter. The dew that time was on beech-trees about half a mile west of my bees; and a man living a mile east of me had 30 swarms, and his bees were not affected. He laughed at me when I told him it was dew that ailed mine. Well, next fall it was on beech timber in the same place, and also on some close to his, and I lost 120 out of 125, and he lost every one of his, and gave it up, and has not kept bees since.

WOODCHOPPER.

Blue Mounds, Wis., Sept. 10.

[Yes, but king-birds *do* eat workers. I watched one one day catching workers on the wing. Before he had fully satisfied himself, he had snapped up something over a dozen bees. That they were workers was evidenced by the fact that they were coming in from the fields heavily laden with honey, and they were so close that I could readily recognize the difference between them and drones. That they are very fond of drones is quite true; but they are also fond of workers. See what Prof. Cook says elsewhere in this issue and the preceding one.] E. R.

BEE-GLUE IN CUBA.

ITS EFFECT ON FLAT COVERS, SUPERS, AND FIXED FRAMES.

As the merits and demerits of the Hoffman frame seem to be the main topic of discussion at present, I can say the same as others say about the frame in Cuba; viz., it is not a practical frame to use here on account of the propolis, which abounds in a superlative degree; and for sticking qualities it is second to none. To give you some idea of its adhesive properties, I have time and again placed supers on a one-story hive, and let them remain some time; and when I would want to remove them, by placing my foot on the bottom-board, with all my strength I was not able to remove the super. Now, mind you, they neither had bees in them, nor stood in the sun. You know that, to do a good job of gluing, you must have a space big enough for a good quantity of glue to adhere to the surface, to be successful. Now, the bees seem to realize this in the Hoffman frame, and I assure you they put it into practice.

I notice on page 473, of June 1, that one of our friends says he can handle the Hoffman frame about twice as fast as he can the loose hanging frame. We must always have a cause before an effect, and I fail to see how it is, that, by causing the top and end bars to be made a little bit wider, it will affect their handling enough to admit of their being handled twice as fast as the common loose frame. Of course, a person may get used to handling a frame, even if it is a little odd shaped and inconvenient at first, so that he can handle it with ease and rapidity; but not twice as fast as the loose frame. Now, the Hoffman frame might do if every one is put back in the same place it was taken from, so the glue would not accumulate on the edges so as to prevent them from going close together; but that would be too much like walking up hill backward, especially where one has to go over large apiaries weekly the year round. I believe the frame will do in a colder climate where less propolis abounds; and the advantage of moving the hives is quite an item in its favor.

FLAT COVERS AND THEIR DISADVANTAGES.

Flat covers are a nuisance here. They are hard to remove, for the bees keep them glued down so tight it makes them unhandy to be removed, besides there being no air-space, which makes the bees rather warm. A hive adapted to this climate should have a space above the frames of about two inches, and also an enamel cloth, which allows the air to circulate freely through the tops, and the bees don't get so hot —that is the main kind of hive in use here.

San Miguel, Cuba. T. O. SOMERFORD.

[From the evidence that has come in, we shall have to admit that bee-glue in Cuba, and perhaps in other hot climates, is superlative in quality and quantity; and it is quite probable that, in such climates, it would forbid the use of fixed frames and flat covers, or covers under which no cloth or enamel sheet is used. When Mr. Hoffman and others said they could handle the Hoffman frame twice as fast as the loose frame, they meant for northern localities, or where bee-glue is no worse than it is with them.

Our own manipulations with this frame justify their statements. Where they gain in speed rests in the possibility of handling three or four frames at a time; and propolis, after these frames have been in use for years, cuts no figure, but it probably would in your locality. As we have explained before, in order to remove a loose or open-end frame, it is necessary to *finger* over *several* frames before it can be drawn out, otherwise the bees will be rolled over and some killed. With the Hoffman, when we crowd one we crowd over all next to it at once, and then we can remove the frame we want, and yet really handle only one frame. Then, too, there is a great gain in closing up a hive with these frames. All that is necessary is to crowd on the outside frame, and they are all simultaneously spaced, and the hive can be closed. There are several other points where we gain in speed of handling; but as I have before explained them, it will not be necessary to go over the ground again.]

THE INTRODUCTION OF VIRGIN AND LAYING QUEENS.

TAKING AWAY THE OLD BEES.

I have been reading an answer by G. M. Doolittle on introducing virgin queens, and I have been thinking of writing something on the introduction of queens in general, as, at this season of the year, to many it is not an easy undertaking to introduce a queen safely. There have probably been almost hundreds of suggestions as to how to introduce queens, and I find almost every method will at times fail, and almost every method, on the other hand, will succeed. The introduction of virgin queens I find so difficult and uncertain that I avoid doing so, whenever I can; by holding the queen-cell between my eye and the light, I can generally see if she is about ready to come out. She can be seen distinctly, moving slightly in the cell, perhaps only a leg, but the movement is almost continuous; then if the larva is at the right stage when given to the queenless colony there need not be much doubt about the time the cell is ready to hatch; and whenever there is room I introduce the cell directly into the nucleus. When a colony or nucleus has capped cells it is not a difficult matter to introduce a virgin queen; or if there has been a virgin queen immediately before, it is not a difficult matter to introduce a virgin queen. The bees want just what they had before; if before, a laying queen, then a laying queen; if a virgin, a virgin and so on. During a heavy flow of honey we all know the conditions are favorable to the introduction of queens.

I will give a method which has been given to me, of introducing a valuable queen. Take one comb of uncapped brood; place it in a hive with perhaps one or two empty combs; remove the old colony, the one you wish to introduce the queen into, to a new stand, leaving the hive having the comb with brood, etc., on the old stand. The bees old enough to have marked their location will leave the old colony, and fly back to the old stand, when the valuable queen may be introduced with safety, as the younger bees will not molest her. Of course, time enough must be allowed for the old bees to fly out from the hive, which, in good weather, should be not more than one day. After the queen has been introduced, the old hive may be placed on the old stand again, the hive having one frame of brood anywhere. The old bees, as they fly out, will return to the old hive one by one, and not molest the queen.

The other day we were examining a nucleus having a virgin queen when she flew from the comb and immediately went into another nucleus having no queen at all. Upon examining it a day or two later we found her all right; they had accepted her at once. I think an Italian virgin queen is more easily introduced than a hybrid or black, as they are quieter in their movements. R. F. HOLTERMANN.

Brantford, Ont., Can., Aug. 17.

A NON-SWARMING RACE OF BEES.

THEY ARE A SNARE AND A DELUSION, ACCORDING TO ONE WHO HAS BEEN EXPERIMENTING ALONG THIS LINE.

After reading T. W. Livingston's letter, and your foot-note, page 587, July 15, I could not help smiling; and whenever I see an advertisement of non-swarming bees I think it is the most misleading thing that could be put into a bee-journal. I have been working at this non-swarming business for six years, and I had the non-swarming bees to my entire satisfaction. I would build my bees up for the honey harvest till the hive was running over with bees, 11 frames to the hive, frames 14⅞x10, then I would reduce it to 8 frames, put on my cases, and get from two to three cases of honey, 27 sections in each case, and not a swarm. I was so sure I had the non-swarming bee that I was going to advertise queens for sale last spring; but the spring was so favorable, and the bees built up so fast, I concluded to wait another year, and see the result before I said any thing about non-swarming bees. Now for the result. A large number of colonies were marked for honey, and the rest for queen-rearing in the home yard. The honey-flow commenced; and so great was the flow that the ground would be full of bees dropping down, unable to reach the hive. The second case was put on. No bees hanging out, all at work. I told my better half that, if this honey-flow continued as long as other years, the way they are rolling it in we should get over 100 lbs. per colony.

"Why," says she, "look up there at those bees."

Out was coming a swarm, and it continued on from day to day till every colony swarmed that was in the yard, that was marked for comb honey, and my non-swarming race of bees was gone!

I think that, as long as the honey-flow is not too great, and the bees can build comb and store it out of the brood-nest, you can control swarming; but whenever the flow comes with a rush as it did this year (and it may be ten years before it comes that way again), and every cell in the brood-nest is filled with honey, eggs, or brood, and they can't build comb fast enough to receive it in the sections, they will swarm, I don't care what kind of bees they are. It's nature, and they are going to follow it. Lots of colonies hadn't a queen-cell started when they came out, and plenty of room in the sections. C. M. HICKS.

Fairview, Md., Aug. 15.

[Yes; but, friend H., it is worth something to have a race of bees that swarms but once in ten years. When this tenth year comes along with its tremendous rush of honey we can afford to let 'em swarm. A race that is not *inclined* to swarm, during *ordinary* seasons, and, with proper care, won't swarm, is much desired. We agree with you, that we shall probably never be able to develop, by careful selection, a race that is *absolutely* non-swarming, even in a rush of honey. Some bees are greatly given to swarming, and others go much toward the other extreme. It is these latter that we should try to single out.]

EXTRACTING HONEY BY THE AID OF A STEAM-ENGINE.

A. W. OSBURN, OF CUBA, TELLS US ABOUT HIS MAMMOTH EXTRACTOR, AND HIS PLANS FOR DOING EXTRACTING ON AN IMMENSE SCALE. AN EXTRACTOR THAT WEIGHS 1730 LBS.

Friend Root:—I am happy to say to you and the readers of GLEANINGS that my 21-frame extractor, and engine to run it, are both in their respective rooms, and we are now busy putting them in position for business, which, by the looks of our 600 colonies, will not be long in coming. This has been no unusually good year for honey. It has been too dry. From Jan. 1 to Aug. 15 we had only 5½ inches of rain; yet for all that, 600 colonies here in this one apiary have done well. We have not fed one pound of extracted honey this summer; and now at this date many of them need extracting, and will have their honey taken away as soon as we can get the machinery in position to do it.

Now, friend Root, you know in years gone by you have heard me speak several times of extractors; and I once gave you my ideas of what I thought an extractor should be for business. You made fun of it (but I forgive you, as you are sorry for it now). Well, I have got now the only extractor I ever saw. The others have been but toys, playthings to be broken and smashed every time a man got the least bit in a hurry. But it will be a cold day and a slippery afternoon when the operator smashes this one. To give you a little idea of its strength and dimensions, I will say that the reel is 7 ft. 3 in. across; the upright shaft is of 3-inch round steel, and weighs (the naked shaft) 127 lbs. The horizontal shaft is 2½-inch round steel. The arms that support the combs are ¾ square steel, and the whole machine complete weighs 1730 lbs.; so you can see it is no toy or plaything. It is all built of steel, and is the very best workmanship. It was built by E. R. Newcomb, Pleasant Valley, N. Y., after plans I sent him. The engine is a Bookwalter, built by James Leffel & Co., Springfield, Ohio, and is first class in every respect.

Now, will it pay? Well, let's see. I calculate to be my own fireman and engineer, and to extract all the honey two men can bring to me with two comb-carts that carry 80 combs each. Now, how many men would it take to throw out what honey these two carts can bring in in a day? Well, I can tell you pretty nearly. It would take about six. The engine I can run for 75 cts. a day for fuel; oil, 15 cts., all told, 90 cts. Now, which would be the cheaper, do you think? I will take the steam extracting-plant, and let those extract by hand who like it better than I do.

Now, I know I have told you before that no man knows what the honey resources of this country are. I have been trying to find out something about it, but as yet I have not been in position to judge, for I have not had colonies enough to test it. Does not this summer's experience prove that the resources are entirely unknown? for, with all the dry weather, my 600 colonies have done well. Why have they done better than last year? I will tell you. Last year I put in 450 young queens, and made 300 new colonies, so you can see that all the colonies were weak, and you need not be told that weak colonies gather little or no honey to store. This year I had but few colonies to make, and but few queens to put in, so the colonies have been strong all summer, and their hives well supplied with honey. So I tell you for a fact, that I do not know what the resources of this range are. I shall put 100 more colonies next spring in this apiary, and try the range with 700 colonies.

By the way, I want to tell you I took 3400 lbs. more honey last spring after I sent in my report, making 73,400 lbs. for last winter's crop. To resume, I look at it like this: Suppose I get more bees in this one apiary than can get a good living all summer long; will it not pay to feed a little in the summer? for, as I have told you before, it is practically impossible to overstock in the winter. Well, I have the machinery for throwing out an almost unlimited amount of honey, and it is all under the same roof, with the same set of hands, and the same management. It is worth the trial, anyhow.

A. W. OSBURN.

Punta Brava, Cuba, W. I., Sept. 5.

[No, friend O., we did not mean to make fun of your extractor; we only desired, in a pleasant way, to warn small bee-keepers of this country against investing too much in appliances for extracting. In your case we must certainly consider the matter of locality. There are very few places indeed that will support so large a number; and where so many are in one place, it is possible that you might use to advantage steam power, providing you have other uses for the engine outside of the extracting season. An engine and boiler are expensive, and, if not kept in use, will deteriorate, unless a great deal of care is exercised. We should also consider first cost, and interest on the money. After all it is a question whether you can extract the honey as cheap by means of these extra appliances as you could by the use of more small extractors and more men. Labor is cheap in Cuba, we understand. Your enthusiasm is commendable; and if any man will make it succeed, you probably will. We shall read with interest your further reports, and we hope you will keep us posted right along.] E. R.

PROGRAMS FOR CONVENTIONS.

DR. MILLER TELLS HOW HE WOULD HAVE THEM.

Well, about that program. What's a program for? When you attend a concert, a program is placed in your hands that you may better understand what is going on. You hardly need one for that purpose at a bee-convention. Even if the program is not placed in your hand at the concert, the performers need one in order to have a plan to go by. So a plan is needed at a bee-convention. And yet some excellent conventions which I have attended had no program made out beforehand. The fact is, you do not know beforehand who will be in attendance, and it is too often the case that a name is put on a program when the man does not come at all. So I would make a point right there, that no one's name should be put on a program unless he had positively agreed to be present.

Another object of a program is to advertise the convention—that is, where the program is published in advance. Indeed, is not that the most important use? And an entirely legitimate use it is. Get up a fine program, having on it a number of topics in which I am deeply interested, and will not the reading of that program make me anxious to attend? Suppose I find on the program the two following items:

"The successful prevention of the desire to swarm when working for comb honey.—*Theodore Stull.*

Nailing hives together. — *G. M. Doolittle.*"

Now, how will those two items affect me? The first topic just stirs me all up, the second I don't care any thing about. But the first topic is discussed by a young man of scarcely any experience, and withal somewhat visionary, and I doubt whether it will be worth hearing. The second topic—I know how to nail hives well enough, and I don't care a great deal about it any way; but Doolittle will be sure to give some bright hints, no matter what he talks about, so I should really like to hear it. After all, that doesn't get to the bottom of it. I care more to know the names of the men who will be there than the topics. If the right men are there, I'm pretty sure the right topics will come up, and I'm very sure the discussions will be interesting and useful, whatever the topics. So if a program were to be gotten up to make me almost crazy to go, it would read something like this: "Among the topics to be discussed are, Closed-end frames; Spring management; Cultivated honey-plants, etc. The following persons have notified the secretary that they intend to be present: Adams, John; Baker, Mrs. B. F.; Cook, Prof. A. J.," and so on through the alphabet, giving a full list of all to be there, so far as known. Some have already acted on this plan, so far as to mention the names of one or more prominent men expected; but a full list would be better on more than one account. Such an entire innovation as I have suggested might not do, but I merely give it as a hint in the right direction.

From what I said in a former article, it may easily be inferred that I would give the question-box a prominent place, mentioning on the program that all were requested to contribute to it. Indeed, this box might very easily furnish material to occupy the whole time. Lately I saw in the *Stockman and Farmer* the advice to avoid having too many topics on the program of a farmers' institute, and it will apply with equal force here. Always leave room for plenty of time to discuss live topics that will be pretty sure to present themselves, and which may not have occurred to you. A president's address, giving, tersely, suggestions as to things needed, new things to be considered, etc., is a good thing. I've known a few such. But a "Again, brother bee-keepers, the seasons have rolled around, bringing their usual allotment of successes and failures," and so on through a quarter of an hour of platitudes, without a single new idea—such an address is better left unspoken. Let the seasons roll if they want to, and you get down to business. For the same reason I would have no essay on any subject that requires no discussion. The proper place for such essays is in the columns of the bee-journals. About the only use for an essay at a convention is to *introduce* a subject, and you ought to do all in your power to keep those essays from going beyond five to eight minutes. An exception should be made in case some special subject needing something in the line of illustration that could not so well be given in the bee-journals. Prof. Cook once gave us such a talk at Chicago on the bee's leg.

Neither is it a good plan to have time taken up with an address of welcome from the postmaster or mayor, with a reply thereto. What matters it to us to be told of the many natural advantages of the growing city of Podunk, with a detailed statement of the number of pounds of cheese shipped from that port during the last twelve months ending Feb. 31? We come there to talk about bees. Nor should a place be left on the program for a visit to the principal point of interest in Podunk, unless it be a visit to a foundation-factory or something in which we *all* have an interest. If any want to visit the slaughter-houses or the rolling-mill, they can stay and do so after the convention is over. A. I. Root will be sure to find a big cabbage a mile and a half away; and if he finds a greenhouse full of roses he may coax me to go with him; but let him go between times, and not break in on the sessions. There should be a recess of ten or fifteen minutes in each session; and as there is danger of this very important matter being forgotten, it ought by all means to be down on the program.

Marengo, Ill. C. C. MILLER.

[I am glad, doctor, you would leave out the address of welcome from the mayor or some other important functionary. When bee-keepers go a good many miles to attend a convention, they go to get acquainted with bee-keepers and not with mayors, and to get down to solid business as soon as possible. The address of welcome and the reply take up a great deal of time; and after all with the majority of them what is there of real value for bee-keepers to carry home? There is one thing, however, that you have omitted, and I am a little surprised at it; and that is, a place for music on the program. Whenever we have good music we always agree that it helps to enliven us and to relieve the tedium that follows on prolonged sessions; and surely who is there who is more capable of giving us really good music of the enlivening kind than Dr. Miller himself? The doctor need not read this last sentence.] E. R.

A MODEL CALIFORNIA APIARY.

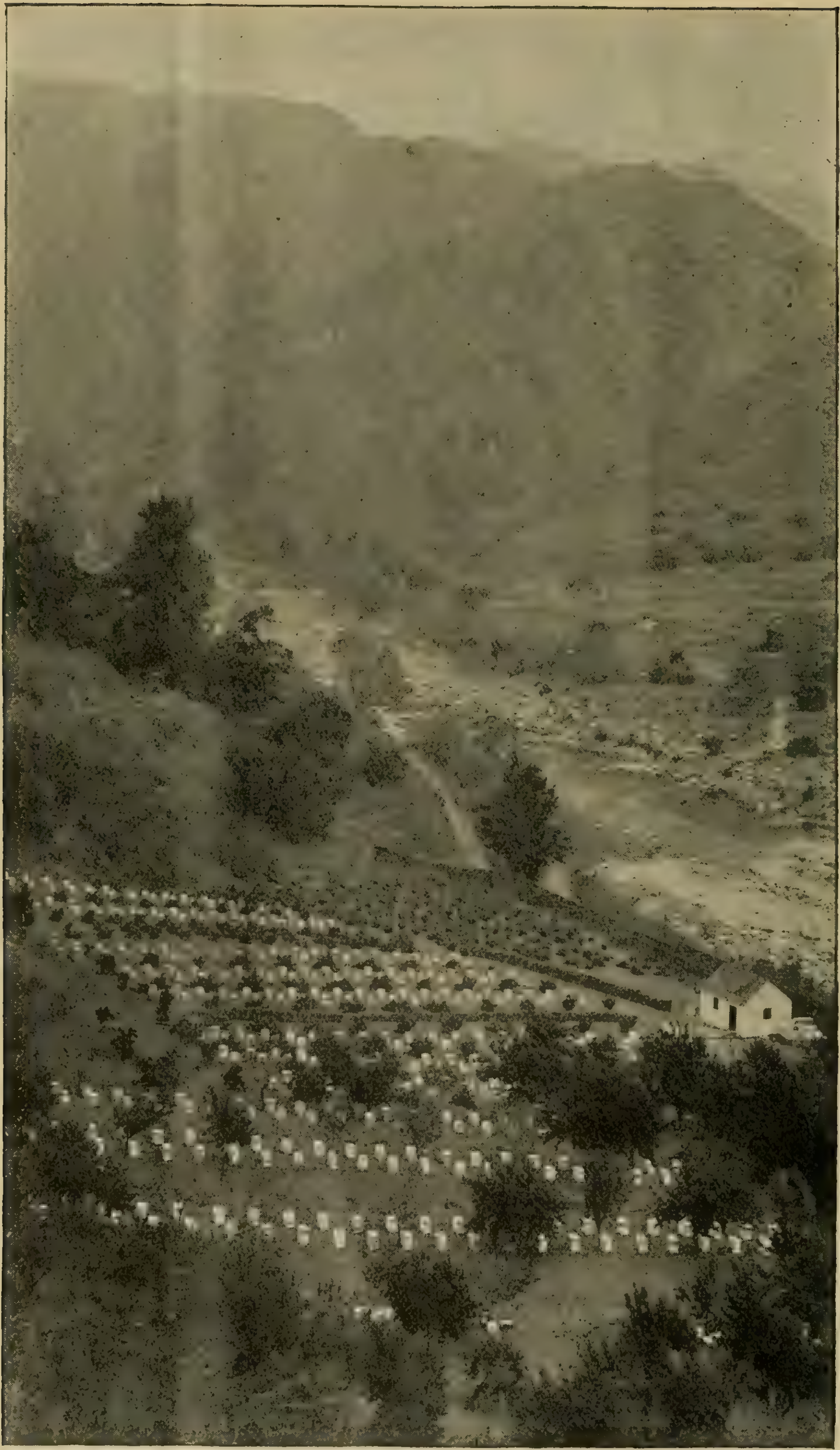
THE SESPE APIARY; SOME OF THE MODERN CONVENIENCES OF A WELL-REGULATED APIARY.

My first glimpse of the Sespe apiary was in the A B C book years ago, when yet an A B C scholar. Mr. Wilkin's reports of the wonderful honey yields, and the hundreds of colonies of bees comprising single apiaries, to me at that time seemed incomprehensible. We sometimes change with time, so with place; thus the past four years on this coast have passed as pleasantly as one season here glides into the other. It has been my good fortune during this time to form the acquaintance of J. F. McIntyre, the present owner of the famous Sespe apiary.

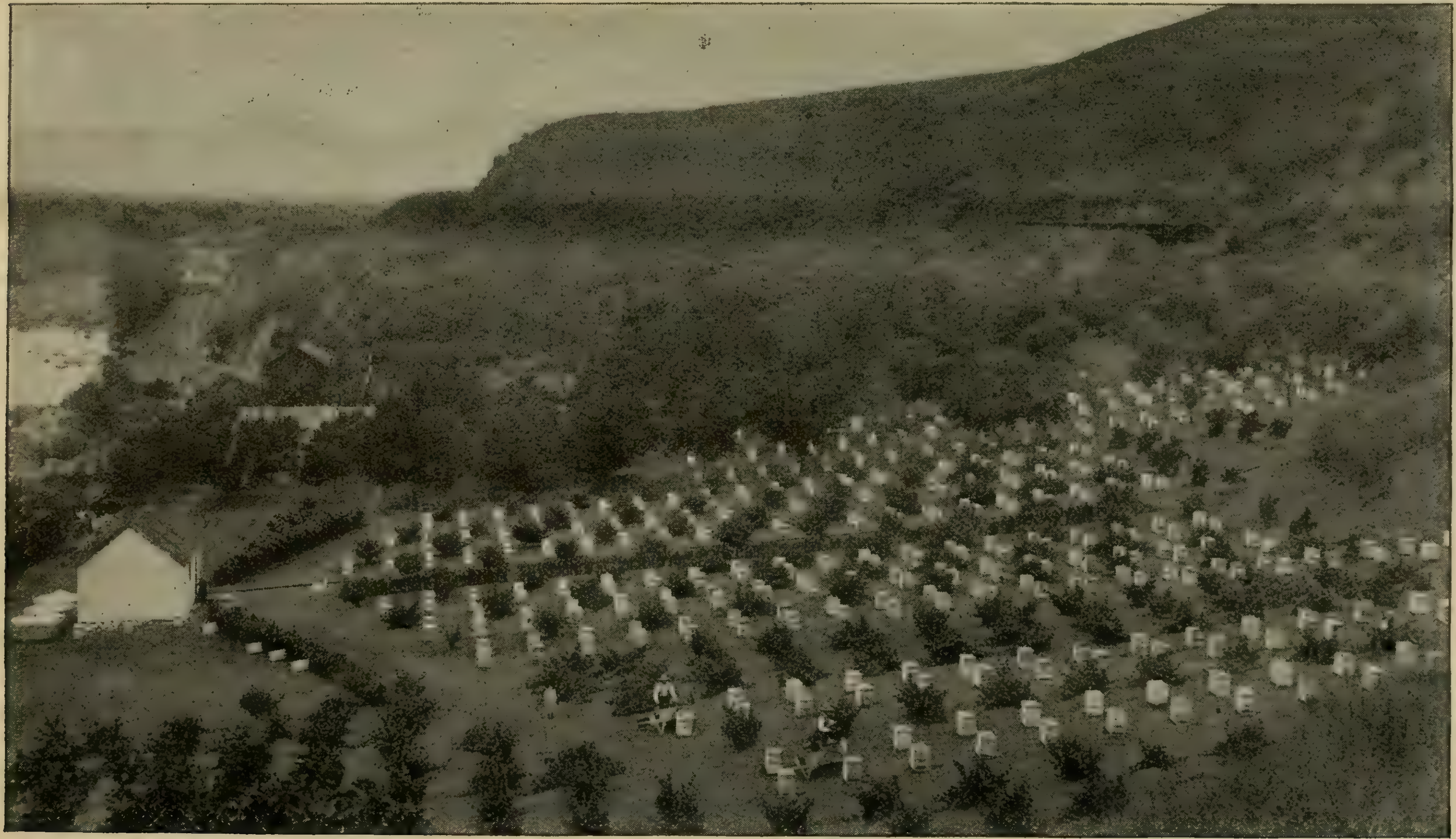
To an oft-longed-for and pleasantly consummated visit, your readers are indebted for a few facts and some untold history of this apiary. It is located three miles from Fillmore, Ventura Co., on the Big Sespe River, and at present contains 500 colonies, arranged as you see above, in parallel rows, one row fronting one way and one the other, and so on to the end. This method permits a passageway for the comb-cart, and, as you will notice, the growing of grapevines for shade.

In numbering for his record-book, Mr. M. begins with the first row, calling that A; the second row B, the third C, and so on to the end. Beginning at A he has a stake number for each colony from one to the number composing it, repeating the same with every row. While this method is not new, it undoubtedly is a very simple method of keeping a record of each colony and location, and this reminds me that Mr. M. relies entirely on his record-book, consequently makes use of no unsightly stones as signs to indicate the condition of things. Every hive is painted white, and spaced, so that in appearance the apiary is a miniature city.

In the background, to the left, are some large orange-trees under which are nuclei for queen-rearing. Four 4¼x4¼x1⅜ sections compose the brood-frames for each nucleus. The loose bottom-board has rabbeted strips to hold frames



J. F. M'INTYRE'S APIARY, FILLMORE, CAL., LOOKING EASTWARD.



J. F. M'INTYRE'S APIARY, FILLMORE, CAL., LOOKING WESTWARD.

¼ inch from sides and bottom. The miniature hive is of ¼-inch lumber, and made just like a box without any bottom. There are 100 of these in use at present, and, with the Doolittle method of securing queen-cells, have proved quite a success.

It is necessary to keep these nuclei well supplied with honey to prevent swarming out; and as soon as the queen is laying, a single strip of queen-excluding zinc over the entrance prevents her loss.

At the left of picture is the honey-house. The uncapping-can, which was of so much interest, has been described in a previous number. Adjoining the extractor is a Pelton water-motor, which is intended to supply the place of hand labor. The water to run the motor is piped from a reservoir located at the right of the apiary on the side hill about 50 feet higher than the honey-house. Mr. M. has a perpetual water-right, and, by connecting the reservoir with the water-ditch, if necessary he has a continuous flow of water to run the motor. He at present contemplates attaching a dynamo to his power, using electricity for lighting his residence.

At the left of the honey-house are three large tanks, holding 4 tons each; and with a 12-ton tank near his residence, this gives storage for 24 tons of honey. As we too often read only the bright side of bee-keeping, I herewith append a record of this apiary for the following years:

Years.	In. Rain.	No. Colonies.	General Average.
1876	21¼	150	200 pounds.
1877	4⅛	300	No honey; half bees dying.
1878	20¼	150	275 pounds.
1879	12¾	300	No honey; half bees dying.
1880	22 7-16	200	175 pounds.
1881	13⅝	400	20 pounds.
1882	11 1-16	120	15 pounds.
1883	11¾	150	40 pounds.
1884	41¼	160	100 pounds.
1885	8⅞	200	No honey: half bees dying.
1886	28⅝	240	175 pounds.
1887	16⅝	330	10 pounds.
1888	20	400	50 pounds.
1889	24⅜	420	36 pounds.
1890	39½	430	60 pounds.
1891	19⅜	450	21 pounds.

You will notice a small honey yield some years, when there was plenty of rain. This was due to the greater portion of rain falling early in the season and but little after. The rains here often begin in November; and as the honey-flow months are May, June, and July, unless the rain is pretty evenly distributed, and continued late in the season, the honey crop is in proportion.

The range for bee-pasturage adjacent to this apiary is truly wonderful. On both sides the mountains is one dense growth of the various sages; and a mile up the Sespe you find yourself in a region so wild and weird that it seems as though it were never destined to be inhabited. The mountains tower above you so as to almost exclude the sunlight on all sides, clear to the mountain-top; and as far as the eye can see is one vast rank growth of California bee-forage, making it a veritable paradise for the honey-bee.

I do not wish to infringe too much on your valuable space, yet it seems I have not told the half. To close, I wish to say that such bee-keepers as Mr. McIntyre are a credit to this industry. His good wife, no doubt, has been a great incentive and helper toward his present standard; and I doubt not but that the Sespe apiary is destined to prove some wonderful things as to the honey production of California.

Los Angeles, Aug. 21. GEO. W. BRODBECK.

In addition to the above we solicited something from the pen of Mr. McIntyre, and here it is:

One of the greatest drawbacks in trying to keep about 500 colonies in one apiary is that the bees are bound to get more or less confused, and to enter the wrong hive. I think this is the chief reason why young queens are so often balled at mating time; and in laying off an apiary I always try to avoid this as much as possible, and still have the apiary convenient to work. When Mr. Wilkin had 500 colonies on the space occupied by the six double rows in the middle, directly above the honey-house, this confusion was sometimes quite serious. When a swarm would come out in the middle of the day, the lost bees would go with the swarm until it was large enough to fill four hives, when they would ball and kill the queen, and in a few days scatter with other swarms and thus keep the owner in trouble all the time.

That part of the apiary in the orchard pleases me better than any other arrangement of hives I ever tried. It is much better than the grapevines. The trees were originally 18 feet apart each way; but I cut out every other row running up and down the hill, to give the bees a better chance to fly in and out. This gives 36 feet to each double row. The two hives take four feet, and there is a five-foot space between the backs, to run up and down with the honey-carts, and 27 feet between the fronts, hives six feet from center to center in the rows. The bees keep their own hives, and do not work out to the ends of the rows in this orchard part. Queens are not balled, and it is a treat to get into the shade occasionally when taking out honey. That patch in the corner by the board fence shows how a California vineyard looks. They do not trellis the vines here, but cut them back to mere stumps every winter, so the plow and cultivator can run between them.

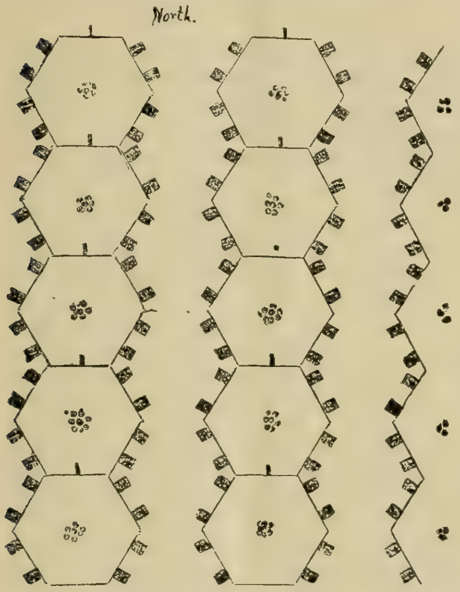
The high board fence is not designed to keep out thieves, but to protect teams and people from the bees. The water over the honey-house is the Sespe creek, from which the apiary took its name. It is all pure spring water from the mountains in the background. The rain falling on the mountains in the winter passes down through them and runs out at the base all through the long dry summer, and thus the mountains act as reservoirs on a gigantic scale. I wanted to take friend Root up into the mountains when he was here; but his time was so limited I knew it would be only a disappointment to start. But when he comes again, with Mrs. Root, if he will give himself at least 36 hours here I will engage to travel with him all over the mountains if he wishes. These mountains produce petroleum, brownstone, honey, and some pasture. The bushes shown in the picture are mostly live-oak and sumac.

Fillmore, Cal., Aug. 17. J. F. MCINTYRE.

[The pictures above possess a special interest to all bee-keepers; for with the descriptions following we have some facts regarding a place where bees are kept with as many as from 300 to 500 colonies in a single apiary. The table we are favored with seems to indicate a larger yield per colony where 200 or less are kept in one place at one time. In 1881, with 400 colonies, the yield was only 20 lbs. per colony. This, of course, may have been owing largely to the season. In 1888, with 400 colonies, he had 50 lbs. per colony; and in 1890, with 450, 60 lbs. per colony. It seems to me that it would be better to scatter the bees around in different apiaries; yet when we consider the advantage of having all the bees in one place, right under the proprietor's eye the year round, it may be that friend M. is not so much out of the way after all. I think the best description I can give to our readers, of this beautiful place when I visited it in December, 1888, will be by quoting what I wrote at that time:

Those great mountains before and behind your pretty little ranch kept me staring so much of the time with open mouth that I am afraid I did not look at the apiary as much as I might have done otherwise. Perhaps not all the readers may be as fortunate as you are in having access to stones of any particular size you may happen to need. I want to explain to the friends, that right in front of his house a big block of granite about the size of a meeting-house stands as tranquilly and unconcerned as if it had a perfect right there; but friend M. told me, when I looked at it in a questioning way, that it came down the canyon one night in a *flood*, and stopped right there. In my innocence I spoke about following the path up to the summit of a mountain right across the stream, while waiting for the buggy. They said I would not have time, and asked me if I noticed some animals away up on the summit of the mountain. I told him I saw some little black pigs, if that was what he meant; but after looking carefully the little black pigs seemed to have *horns* on their heads. When told they were cows, the mountain seemed to spring up a quarter of a mile all at once, and I concluded I would not go up where those little cows were, especially as we hadn't more than an hour to spare.

Do you want to know something more about the apiary? Well, Sespe apiary, as they call it, is one of the prettiest I ever saw. The honey-house is at the foot of the incline, just below the bee-hives, so that a cartload of honey goes down through those open lanes without much labor. Between the honey-house and the road is a great iron tank. These iron tanks are to be seen near every honey-house in California. An iron pipe runs from the extractor into the tank; then a gate at the bottom of the tank lets the honey into the square cans, standing on a platform just right to load into a wagon. There is no need of building any roof over the tank, for it never rains in California during the honey-flow. You will find a photograph of some of the mountains back of Sespe apiary, in our A B C book. Right back of the apiary, on the western slope, is an irrigating canal that pleased me greatly. It is a sort of wooden flume; and the sight of the pure babbling brook that glides down over the sandy and gravelly bottom, as if it were in a big hurry to get somewhere, was to me a fascination. These streams of water mean business—market-gardening, fruit-raising, etc. The picture of R. Wilkin's apiary, in the A B C book, does not begin to do justice to the spot. The trees seen scattered about are orange and fig trees, and the oranges and figs are good too.



PLAN OF SESPE APIARY, BELONGING TO J. F. M'INTYRE, FILLMORE, CAL.

Do you want to know what our young friend McIntyre is doing with R. Wilkin's apiary? Why, he married friend Wilkin's youngest daughter—that is how it comes about. Oh, yes! I want to tell you one thing more about young McIntyre: He is a young Canadian, like "our John;" and I tell you, friends, when you find better boys to work than these young "Canucks" you will have to fly around lively. When friend Wilkin was putting up his shipload of honey to take to Europe there was a great demand for tinners, to solder up cans. The best tinner in San Buenaventura succeeded in soldering only about 1100 cans in a day; but friend McIntyre, after a couple of weeks' practice, soldered up *1400*.

You know I am greatly interested in irrigation ditches; and the one above the apiary on the side of the mountain attracted my attention at once. The mountain-side was so steep, however, that I was pretty well tired out when I reached the edge of the canal; and when I attempted to stand up straight, the sight of the apiary away below down the very steep mountain-side made me so dizzy that I was forced to grasp hold of some little bushes that grew along its bank; and even then I greatly feared I should lose my footing and roll down in an undignified way among the hives. Besides, I was puffing and blowing because of the effort required to climb the mountain-side. Just then, whom should I see right behind me but friend M.'s little girl? She had followed unobserved, at least by myself. I was so sure she would fall and endanger her life that I was going to make haste to catch her in my fright. As her father manifested no uneasiness, however, I turned to him questioningly. "Why, Mr. Root," said he, "you need not be worried at all. She and her younger sister come up here almost every day." And then I discovered that she had not only kept up with us great stout men, but had lugged along a pretty good-sized dollie, and seemed none the worse for the exertion. You see, they had been brought up among the mountains, and had learned to climb them, even in their infancy.

Many thanks, good friend M., for your kind invitation; and I assure you that, Providence permitting, I will some time give myself the pleasure of going over those great mountains. In fact, ever since my visit I have felt a little troubled because I was in such haste to get home when there were such wonders to be seen. I wish to say to our readers, that the picture showing the mountains on the east and north is the most perfect and life-like of any view of the mountains I have ever seen.] A. I. R.

BACILLUS DEPILIS—WHAT CAUSES IT?

SEE DOOLITTLE'S ARTICLE, PAGE 692, SEPT. 1.

From my observations in three States—Indiana, Texas, and California—I am convinced that writers have confounded two distinct and radically different diseases under the name of "nameless disease." Bacillus depilis is a very appropriate name for the one wherein the bees afflicted become hairless, shiny black, and tremulous before death, which, so far as I know, was first described by A. I. Root, under the nomenclature of "nameless" disease. Bro. Doolittle, the disease you encountered is not bacillus depilis, but a much graver malady, and the ants had nothing to do with it, only when they dug up the germs of the disease where you had buried it; and changing queens is utterly useless as a remedial measure.

This disease often plays havoc in the spring, especially where brood-rearing is progressing rapidly in cold or chilly weather, and in hives without sufficient protection. In an apiary so situated, let the microbe (or bacillus, if you prefer) find a lodgment with a hive crowded close together, if you want to see bees die and the apiarist get the blues.

The disease which friend D. encountered, and which I have met in Indiana, Texas, and badly in California, is, in my judgment—

1. Of bacillic origin.
2. Contagious.
3. Does not attack the young bees before they emerge from the cell.
4. Rarely if ever attacks bees after they have been in the fields for a week or ten days.
5. Primarily attacks the nurse-bees in the second week after hatching, and is communicated by them to the young field-bees, to younger nurse-bees, to the drones, and, lastly, to the queen, in the order above mentioned. The queen and drones generally escape the malady, and the old field-bees always escape. When the queen dies the bees will rear another, sometimes two or three from the eggs or larvæ in the hive. The symptoms are:

1. Lassitude.
2. Enfeebled power of motion.
3. Inability or unwillingness to sting.*
4. Paralysis—first, hind legs; second, of wings and abdominal muscles; third, of the second pair of legs, death being simultaneous with the complete paralysis of forelegs and antennæ. Paralysis of the muscles used to work the sting is, I think, the reason they can not be made to sting. Dissection shows the alimentary canal to be loaded with thick but not dry feculent matter, revealing that either paralysis or constipation had occurred at the outset of the disease.

A bee afflicted as above described rarely lives for two days, frequently dying in a few hours. I have seen them fall by the wayside after getting a load in the field. Others would reach the alighting-board with their pollen-baskets full, and be unable to enter, and thus die, as it were, on the doorstep. The odor emanating from bees dead with this disease is almost identical with that from the dissecting-room of a medical college. Bees with this malady do not become bald or hairless, nor have the trembling motion. This disease never attacks queenless or broodless colonies. Next in order of escape are those with very little brood, and therefore few bees under 20 days old.

In my apiary of 130 colonies last spring, 125 had the disease; 5 were queenless, and so escaped; 2 other queenless stocks to which I had given brood escaped until the young bees were about ten days old. Stocks that were preparing to swarm lost fully two-thirds of their bees in two or three weeks. It was interesting to watch these colonies two or three weeks after the appearance of the malady, and see that three-fourths of the field-bees were old, gray, and bald-headed fellows.

The malady lasted for about two months from its first appearance until it was of no appreciable consequence, although it was over three months before it took its final leave. I lost only two colonies, but it effectually prevented swarming. It is the best non-swarming device of any; but don't try it if you can help yourself.

I have no doubt but that the real cause is of microbic origin, assisted by cold and damp, especially damp chilling winds; therefore give good protection, especially in the spring. The malady showed itself in my apiary this spring in two days after a cold northwest wind that kept the bees at home for most of two days; but it had made its appearance in Mr. Cheadle's apiary, only about a mile distant, some time before, but also after a cold chilly wind. I think the bacillus was present; and when the cold winds came, the bees, in trying to protect the brood, gorged themselves with honey and pollen to increase the heat, and did not gather in a compact cluster as broodless stock would do, and so were chilled and enfeebled, and thus furnished a fruitful field for the propagation of the bacteria. That it is not caused by cold alone is proven by its not appearing every spring after cold spells when the bees are in like condition as to brood. That they have consumed much pollen is demonstrated by the composition of the contents of their intestinal tube.

When you see a few bees moving sluggishly over the alighting-board, or lying as if they were sunning themselves, and, when disturbed, move their hind legs with difficulty, take a few of them between your fingers and thumb, and, if they will not attempt to sting, be sure you have a colony that is afflicted with a very grave malady. Bees thus afflicted do not curl up like those that have been stung, although a bee that has received the barbed javelin of his enemy never tries to sting, but uses his strength to get away from the swarm to die.

I fancy the disease above spoken of is produced in the bees by a cause somewhat similar to that which produces the grip in the "human insect," and would therefore suggest *Apis la grippe* as a name, although *Apis paralyticus* would be more appropriate.

Perhaps spirits of turpentine, rubbed up with sugar, one part to 10, or mixed with honey, one part to 30 or 40, will be found of value; but remember that any remedy for a disease that often eventuates in recovery may be overestimated. Remember, too, that a bee that is once afflicted with this malady never recovers, although the colony generally survives it.

Los Berros, Cal., Sept. 11. E. S. Arwine.

ARE WE DRIFTING FROM OUR MOORINGS?

FEW OR MANY COLONIES—WHICH?

Under the above heading, in the last issue of Gleanings I spoke of what seemed to me to be a mistake that was creeping in among the brethren of to-day in regard to "handling hives instead of frames," and spoke of the matter along the line of the necessary change in hives which must be brought about, according to the notions of those advocating this theory of handling hives to accomplish the looked-for results. In this I will speak of the bearing "the field" will have in this matter; for if the handling of hives instead of frames means any thing, it means that the apiarist is to gain time in this handling of hives, so that he can keep more colonies of bees, and thus secure a larger crop of honey from this increased number of bees than he did before with a less number and more time spent in the manipulation of frames. In this matter of increasing the number of colonies, the field, or location, plays a very important part; and it seems to me that here is an item which those pushing this matter of handling hives have overlooked. It is well for all of us to look any matter over carefully; and if we are on the wrong track, get right. If any of the readers think I am on the wrong track, I wish they would speak right out; for by a *friendly* talk over these matters we shall all be benefited, and no retarded growth of Gleanings will result.

After carefully looking the matter over I believe that there is one item, and that item is the one hinted at above, which is great enough to more than pay for all the extra work of manipulating frames which is required, so that the investing of capital in more hives in which to put more colonies, so that "hives can be handled instead of frames," is worse than thrown away. Each of the extra colonies put into the field in order to secure the honey secretion from a given area with less work, or manipulation of frames, costs at least 60 lbs. of honey each year to support. So the question which we must answer will be, Which is the cheaper—a little extra manipulation of frames, or the extra colonies, hives, etc., and the honey that they consume? Suppose that 100 colonies produce an average of 50 lbs. each, and by so doing secure all the nectar in a given field, year by year. This will make 5000 lbs. of surplus as our share of the field, while each of the 100 colonies will use 60 lbs., or 6000 lbs. as a whole, as their share to carry them through the year. Some contend that it takes at least 100 lbs. to the colony to carry them from May first to May first again, as far more honey is used during the summer than the winter months; but as I have no means, except my own observation, of saying just how much is consumed, I am willing to err on the side that will be of the most advantage to my opponents. It will be seen, by taking even the low estimation given above, that we fail to get half of the honey from our field by employing an extra number of colonies. On the other hand, if we employ the "manipulation" (or economy) plan which our English friends do of securing the same amount of produce from an acre of land (just the plan A. I. Root has been telling us about in his gardening papers during the past) that we Americans do from three or four, we shall find our statement thus: 11,000 lbs. is the product of our field; 50 colonies are all that are needed, with good management, to secure the whole amount. Then 50 colonies must use 3000 lbs. of this for their support, leaving 8000 lbs. for the manager. It will be seen that the apiarist gets 3000 lbs. of honey for his manipulation, and uses but little if any more time on the 50 than he would on the 100 worked on the other plan of "handling hives more and frames less;" hence from the standpoint of overstocking a field, the former plan is 3000 lbs. ahead of the one which is now being agitated through the columns of our bee-papers; and as I said in my former article, this matter of supporting a greater number of colonies in our field is a matter which is against the "handling of hives instead of frames" for "all time." I firmly believe that it is no fancy of mine in thinking that it is just as easy to care for half the number of colonies in the way we have been formerly doing as to care for double the number on the plan now being pushed; and this same half will give the apiarist as good results in dollars and cents as will the whole in the "new" way, and save the extra honey consumed by the extra half of the number of bees as clear gain to the bee-keeper. Friend A. I. Root should be able to tell us by this time whether he has been right in recommending the high-pressure plan of gardening. Without waiting for him to answer, I will reply for him by saying, "*He knows he is right.*" If his plan of getting the greatest possible yield from an acre of ground is right, I am equally confident that the same plan is the *right one* when applied to bees. A larger yield from each colony, and a fewer number of colonies, is more preferable, to my way of thinking, than more colonies with a less yield per colony; and this latter must always be the case where we "handle hives more and frames less."

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*I have never been able to induce a bee so afflicted to attempt to sting by pinching, rolling between my thumb and finger, or taking a few in my hand and gently squeezing them.

Now, readers of GLEANINGS, the thing is before you. If I am wrong, show wherein I am so, and I will make my best bow, and say "thank you." In conclusion I will say that *no hive* compels the handling of frames, for the frames need not be handled at all if the apiarist does not wish to. It is in the handling of the frames, if handled judiciously, that the profit comes. Where there is no profit, *don't handle;* and it is for each individual to know whether profitable to him or not. G. M. DOOLITTLE.

Borodino, N. Y., Sept. 21.

[I am sure, friend Doolittle, that I do not disagree with you unless it be on one point; your argument, as stated above, is directed a great deal more against the *overstocking* of any one locality than against the handling of hives more and frames less. It is a big piece of folly to have too many colonies for the locality. If 50 stocks will gather all the nectar there is in the place, it is a great waste to keep and maintain in strength 50 colonies more that would not increase the product of the apiary. Now, your argument, friend D., applies just as much to out-apiaries. Instead of overstocking, the thing to do is to take the surplus of colonies and put them in a new location from three to five miles distant; then when we get two or three out-apiaries we certainly do need to handle the frames less, or to diagnose colonies a great deal more in the line I pointed out editorially in our issue for Sept. 15.] E. R.

REMEMBER THE SABBATH DAY, ETC.

OUR VENERABLE FRIEND CHARLES DADANT TELLS US SOMETHING OF THE CUSTOMS OF KEEPING THE SABBATH DAY IN FRANCE.

Friend Root:—You are mistaken when you say that people who do not act as you do on Sunday are dishonest. Do you want us to believe that it is impossible to be a good Christian without being intolerant? As far as my memory goes back in my boyhood, I see the old men of my village seated under the trees of the large square, on Sunday afternoons, playing at cards with one or two farthings at stake; while the younger played at nine-pins, and the girls adorned themselves with garlands of flowers gathered from the prairies, or danced on the square. I see our old parson walking around with a smile for every one. He used to say mass at four o'clock on Sunday mornings, during harvest time, not to interfere with the work of the scythe. Do you conclude that these people were dishonest, or robbed, or were bad? A little later, when living in the city, I saw the museum and the city library, of 25,000 volumes, open especially on Sundays; for the poor were more numerous than the wealthy, who could visit them on work days. I received my first lessons in physiology and chemistry from a professor paid by the city to give, on Sundays, free lessons in the city hall, for the benefit of the workingmen.

From their beginning, every railroad in France and in most European nations have had Sunday trains at half price. The French International Exposition was not only open on Sundays, but the admittance was reduced to half price, to help the poor. Yet the Eiffel Tower was not thunderstruck. Then the success of this exposition seems to show that God, far from being angry, smiled from above and said: "To work is to pray; you poor workmen have prayed enough during your six days of toil; now enjoy the life that I gave you, and be happy; for the God of to-day is no longer the God of Moses, who ordered the Jews to smite the other nations (Deut. 7:2, etc.), but the God who asked, "Is it lawful on the sabbath, to do good?" (Luke 6:9). Friend Root, would you dare say that, to help the toilers to have some pleasure, or to get some instruction on Sundays is not to do good? CHAS. DADANT.

Hamilton, Ill., Aug. 10.

[God forbid, my good friend D., that I should cause Christianity to appear intolerant of any thing but evil, or that I should judge my brother. No doubt the people of your native village who used to spend Sunday afternoons playing cards and nine-pins on the village green may have been perfectly honest, and never thought of robbing any one; and yet it remains true that any man who uses the time of Sunday for his own pleasure, while *he believes* that it should be devoted to God, is violating his conscience in thus robbing God, and is in a fit state of heart to rob his brother also, if circumstances and motives should conspire to tempt him. Yes, the God who is "the same yesterday, today, and for ever," instituted the sabbath — the "rest" day — long before Moses' time, for the *good* of man. Now, the question is, How shall we keep it holy, sacred, set apart for man's greatest and highest good? How shall his body get rest, his mind relief from care and worry, and his soul freedom and opportunity to feed itself upon the glorious works and character of its Creator, and take a lookout above and beyond its narrow work-day horizon? Whatever contributes most largely to this end is what we want, is it not? and what God wants for us in giving the command, "Remember the sabbath day, to keep it holy."]

LADIES' CONVERSAZIONE.

WEAK COLONIES.

THE ADVANTAGE OF HAVING GOOD QUEENS.

Mrs. Axtell's article, page 469, prompts me to ask whether we might not have fewer *weak* stocks by timely and proper attention to queens. If a good queen can and does bring a colony through in a flourishing condition for two or three successive seasons, under the same conditions that other stocks in the same yard have barely survived, why not endeavor to have more of these worthy queens and fewer of those whose families require so much nursing?

This has been a discouraging season with us, not realizing more than 20 lbs. (average) to the colony, to date, in our yard. But while some stocks have produced much more than this, others have stored only the brood-chamber. I blame the queens, for *all* had the same stimulative feeding in early spring. The weak were reinforced by the strong until I was tired of it; and what have I now from these for all this work? Not even a swarm. So, now, while we have a few sunny days and a little honey coming in, I am busy taking the heads off these unprofitable mothers, and introducing new blood; and as soon as I am convinced that any of these successors are unworthy their house and home, aliens from right principles of duty and fidelity, they shall be beheaded, as any unfaithful queen should be. This decree is established in the dominion of our apiary.

We had one colony with a fertile worker, or workers, (which is it?) which became almost depopulated of working bees. I gave them some brood and embryo queen-cells three different times. The last time they concluded to rear a queen, and the result is astonishing. Their hive is already running over with bees and honey, and they are now at work in the super—a good queen, you see.

I want to tell you, Bro. Root, of some new-fashioned sections which I saw the other day, and which you will have to compete with—at least, we know we have to compete with the honey in them. They are pieces of unplaned lath nailed together, forming a frame about 7x9 inches. Some of them were bulged on one side, and an extra tapering slice or comb built in on the other side. They were broken and mussy looking, and put on the market here to sell at 10 cts. Honey is honey here—no difference what grade, and we have much of just such competition, so that I almost heartily wish that everybody would let bees alone who does not, can not, and will not do the business up right. MRS. MILTON CONE.

Chillicothe, Mo., Aug. 4.

THE RECORD-BOOK.

SOME QUESTIONS FOR MISS WILSON TO ANSWER.

Miss Wilson:—This record-book subject is a very interesting one to me; but I wish you would tell us whether you carry your book with you from hive to hive all day and how you manage when you and Dr. Miller are both at work in different parts of the apiary. Do you keep the book and does he call out to you what to write, or the reverse? Do you not sometimes forget to make a record of some hives? I know we do. We have a board nailed against the bee-house, about two feet wide and three feet long, drawn off in squares like a checker-board, representing our apiary. Our hives stand three on a stand, seven stands in a row, and seven rows in the apiary. The squares represent the hives, and in the squares is where we keep our record. We abbreviate about as you do, having copied from "A Year among the Bees," by Dr. Miller. We plane the board off every spring. We have used it three seasons, but I do not like it a bit; and about every year, especially in swarming time, the board, or we, would get all mixed up. It took much time in running back and forth to make a record, or else we had to use a piece of section until we filled it and then we had to take it to the board and copy it off. I discarded the board altogether this summer; but Mr. Tittsworth sticks to the board, and I use the hive-cover. One glance at the cover tells what was done last without having to walk back to the record-board.

Bricks or stones are very useful sometimes. We found them so this season, in requeening. We place a brick in the center of the cover, to mark it queenless; then when our queen is hatched in the nursery, one glance told where she was wanted. Then after we gave the virgin queen we moved the brick to the front of the cover and took it away when she was laying, and clipped her.

That reminds me of your once saying in GLEANINGS, that sometimes you carried a queen to Dr. Miller to clip. You just try clipping a queen without catching her at all. There is not so much danger of injuring her that way as there is by catching them. I have never injured one yet, and I have clipped over a hundred this summer. I use a small pair of embroidery scissors. You just try it once; and if you are not a nervous person (which I don't think you are, for it takes some nerve to work with bees as you do) you will never carry a queen to Dr. Miller again, and you will also find fewer queens killed after being clipped, as I used to when I caught them.

This has been a very poor season in this neighborhood—no surplus honey at all, and we shall be thankful if we don't have to feed our bees before winter. It looks very discouraging to see about 6000 sections all put up with full sheets of foundation standing empty when we expected them to be full; but such is the will of Providence. MRS. W. G. TITTSWORTH.

Avoca, Ia., Aug. 25.

REPORT FROM MRS. AXTELL.

SOMETHING IN DEFENSE OF HONEY-DEW.

This has been another year of failure of the honey crop, except of honey-dew. We should have had to feed largely this summer, except for this honey-dew. The bees filled their brood-combs very full, and sealed it up, so that much of their winter stores will be honey-dew. It is not nearly so thick and heavy and waxy as linn or white-clover honey. When a comb is cut it all readily runs out. For this reason I fear the bees may not winter well upon it, not so much because it is dew honey, but because it is thin and watery, even when sealed up.

In this locality there was honey-dew only upon hickory-trees, which for a few days nearly dripped with it. I notice that nearly every writer in the journals, who speaks of the dew honey, speaks disparagingly of it; but we are very thankful for it. If it does not kill our bees this winter, it has saved us from feeding largely this summer, as our bees seemed to get scarcely any other honey.

The hickory-trees could be seen glistening in the sun a long distance with it on the leaves; and all shrubs that were underneath were covered with the same sweet substance, and swarming with bees. The very topmost leaves were just as wet with it as the lower ones, and no leaves were dry on vigorous young trees. The smaller and younger the tree, the more honey-dew. Old and large trees had not nearly so much upon them. If that all came from aphides, I should think the trees would have had to be swarming with them, but they were not. There were a good many, or several, under each leaf, but more upon the top of the leaf. Why do we so spleen to eat such honey? Is it not just as clean as the milk of a cow or goat, and much cleaner than to eat oysters? In this case we eat only the product of the insect; but in the other case we eat the whole animal. If we could get only honey-dew in the future, I believe nearly every one would use it, and like it too. At first I could scarcely bear the taste of it; but now I rather like it. We have sold it only in our home market, and people call for it nearly as much as for good honey. We tell them it is honey-dew, and to return it if they don't want it. If they wish to buy it we can see no harm in selling it; and as to its being poisonous, as some have asserted, I am sure they are mistaken.

These honey-dearths will kill the suspicion of manufactured honey more than all our denying it. Last year we fed several barrels of dark sorghum molasses, and all the honey we got was nice white honey. This year, as sugar was so cheap we fed only granulated, and all our honey is as black as sorghum molasses, and so is all our neighbors' honey.

We have several hundred pounds of this dark honey, nicely sealed over, and it looks quite well, as the cappings are very white; and if not looked through toward the light, it looks much like fall honey, and not so dark as some white-clover honey I have seen that has remained upon the hives all summer. If it does not kill our bees in winter, as brother Heddon thinks it will not if well sealed up, surely we should be thankful for it; but if it does kill them, what then? Is not the promise, that all things shall work together for good to them that love God? Our loving God will make it for our good. If we don't love him, and are not submissive to his will, I suppose it will not be for our good; for we shall feel like finding fault with God. Job says, "Shall we receive good at the hand of God, and shall we not receive evil?"

Roseville, Ill., Aug. 26. MRS. L. C. AXTELL.

[Perhaps it should be remarked that there are some kinds of honey-dew that are quite palatable, while others are almost nauseating. A good deal depends, also, upon the likes and dislikes of the individual. It is perfectly legitimate to sell honey-dew when you can sell it as such; and if the bees will winter on it, as I think they will do in the generality of cases, it is not so great a calamity after all, when there is no nectar to be had from other sources. But it does work havoc when the bees bring it in along with clover and basswood, and mix it in with the nice white sections—sections that would bring a fair price otherwise.] E. R.

UNFINISHED SECTIONS.

WHAT TO DO WITH THEM.

What is best in all cases to do with unfinished sections is a problem not easily solved. During the early and main part of the harvest we have been in the habit of taking them out of the super as soon as removed from the hive—that is, the supers that are taken off to-day are taken to the honey-room, and to-morrow each super is emptied, the unfinished sections put into a fresh super, and given back to the bees as soon as possible. Taking out the unfinished sections is not as much work as you might imagine. The supers are inverted, and by means of a push-board the sections are all removed at once, or, rather, the sections are all held down by the push-board, and the super lifted off. Generally only the corner sections, at this part of the season, are unfinished, and these can be picked off without disturbing the T tins. After the unfinished sections are all taken, the super is inverted over the sections, pushed down in place, and the finished sections are back in the super all right. To avoid such a catastrophe as the sections tumbling out while the super is being inverted, it is necessary to have a board under the super to be inverted with it. If desirable, the vacancies can be filled with finished sections, a whole super of such being occasionally emptied for that purpose.

So far we could probably do better. But later in the season comes the difficulty. The sections are not finished as quickly; in fact, you are not sure whether they will be finished or emptied out. You hardly know whether to give them a whole super, only half a super, or whether it is best to clear every thing off when the harvest begins to lag.

If we leave any thing on, I think we have generally the best success in giving only twelve sections at a time. They finish them more quickly if they work at all, and the honey is not darkened as it is apt to be when they work slowly and too much is given at a time. If they don't finish them your sections are better off than on; and by using 12 instead of 24 you are likely to have only half as many unfinished sections at the end of the season.

Of course, this will not apply to localities where there is a good crop of fall honey, unless it be toward the close of the fall harvest. Still, it is an open question whether it is best to put on 12 sections, or to clear every thing off as soon as the harvest begins to lag, and trust to extracting if the brood-chamber becomes too crowded. Different seasons require different management. This year we put on 12's and had our labor for our pains, or nearly so, as very few sections have been finished. Although a few colonies have stored a little, the most of them have left the sections just as they were when we put them on, and a very few colonies have done some emptying out.

When it is decided that the bees can not be induced to do any further finishing, what then? Is it best to extract, or to sell at a sufficiently low price to find ready sale? I suspect it is pretty safe to say that sections having only a small amount of honey in them are best fed back to the bees. EMMA WILSON.

Marengo, Ill., Sept. 19.

HOW A LADY MANAGES SWARMS WHILE HER HUSBAND IS ABSENT.

The editor wishes to know how the lady bee-keeper manages in swarming time when her husband is absent. My husband works out by the day, and we use chaff hives. The queens are clipped. When a swarm issues I cage the queen, swing the hive around on one corner backward, turning the entrance in the opposite direction to what it was formerly, and put an empty hive with frames on the old stand. When the swarm returns I let the queen run in. Sometimes I have to cover the old hive or the bees would find their way back again. Then when my husband comes home we put the old hive where it is to stand. We are not troubled with second swarms. MRS. WM. D. KRATZ.

Lawndale, Pa., Aug. 20.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 193. *How can I keep honey, that was extracted in the summer, from souring? How can I keep comb honey from souring?*

By evaporating it. By curing it in a warm room.

Vermont. N. W. A. E. MANUM.

If you keep honey of any kind in a dry, warm place it will never sour.

Ohio. S. W. C. F. MUTH.

1. Ripen it by evaporation. 2. Put it into a dry, airy place as soon as taken from the hive.

Ohio. N. W. H. R. BOARDMAN.

No trouble from any kind of honey souring if kept in a temperature of from 75 to 95°, where the atmosphere is dry.

New York. C. G. M. DOOLITTLE.

Ripen your honey before putting it away. Use an evaporator, or expose it to the sun in shallow vessels until ripe.

Louisiana. E. C. P. L. VIALLON.

By evaporating thoroughly. If necessary, keep it in the sun extractor until it is thick and ropy. About comb honey, I do not know.

California. S. R. WILKIN.

Be sure that the extracted honey is thick. If not so, keep it in a very warm room in open vessels till it is. All honey should be kept in a dry room, and, if possible, in a warm one. Never keep in a damp room.

Michigan. C. A. J. COOK.

Well-ripened comb or extracted honey will not sour if kept in a dry place, and both are better, and will keep well, if kept in a dry and *warm* place, where they should *always* be kept. Extracted honey that will sour in such a place should be called sweetened water.

Ohio. N. W. A. B. MASON.

Honey that has been properly ripened, either before or after being taken from the hive, and then kept where it will not absorb moisture from the atmosphere, will never sour. This applies to both comb and extracted honey. Keep honey where it is always dry and warm.

Illinois. N. C. J. A. GREEN.

It will not sour if fully ripe when extracted. There is sometimes a slight alcoholic fermentation in the upper layer that causes expansion, but this is readily evaporated by melting *au bain-marie.* If we had unripe honey we would evaporate it in this way also, and it would not ferment.

Illinois. N. W. DADANT & SON.

If good honey is stored in a warm dry room there will be no danger from souring. In my early days in bee-keeping, if I put comb honey into the cellar it would gather dampness, and ooze from the cells; and in a close closet it would do the same. Since I keep honey, either comb or extracted, in a warm ventilated room, I've forgotten such a thing ever happens.

Illinois. N. W. C. MRS. L. HARRISON.

If the honey was properly ripened there would be no danger of its souring. I would store in a warm dry room, in half-barrels standing on end, with the cork out of the hole in the end. The sour honey will rise to the top and can be turned off, leaving good honey under it. Comb honey should also be kept in a mild dry room. You must have a very sour country up your way.

New York. E. RAMBLER.

Keep it anywhere but in a damp place; and if it sours, then the trouble is in the bee-keeper. Honey should not be extracted until properly ripened; and comb honey should not be taken from the hives until sealed. Honey is deliquescent, and this affinity for water is why honey becomes thin when kept in a damp place. This is also the trouble with the barrels shrinking—the honey takes the water out of the wood.

New York. C. P. H. ELWOOD.

The way to keep honey from souring is to put it in a dry place. The cooler the better, of course; but the trouble is, cool places are not dry. I put mine in air-tight tin cans as soon as settled, and put them into a cool cellar. Then I get a low temperature without moisture, for moisture can not get through tin. I guess the trouble is, your comb and extracted honey is too thin when you take it from the bees.

Michigan. S. W. JAMES HEDDON.

Don't extract it till it is ripe enough, then it will not sour; but if it is necessary to take some thin honey, to be ready for a better quality, you can improve it somewhat by setting it in wide-mouthed vessels in a room kept hot and ventilated, or put in the sun. Comb honey can be improved by keeping it in a warm room. How long it would improve, I can hardly tell. Some that I have tried two or three years seems to be still improving.

Wisconsin. S. W. S. I. FREEBORN.

Keep it in a warm and dry place; then if the honey was ripe and thick it won't sour. Honey sours because there is too much water in it. But how to get the water out of thin honey is a question I should like to see answered. I have thought of a greenhouse. Can it be evaporated in a greenhouse before it would sour? I have seen cream-separators at work taking the cream out of milk. Won't the same thing take the water out of thin honey? I should like to see it tried.

Wisconsin. S. W. E. FRANCE.

Well, now, seein' it's you I'll tell you just what I'd do if I wanted to make the very best kind of a job of it. In the first place, you must understand that it takes heat and water for fermentation. I'd make all effort possible to get all the water I could out of the honey. I'm not sure that I'd make any difference between comb and extracted. I'd keep it in a place where it would have the full benefit of the sun —up near the roof, or in a building with thin walls of dark color. Give plenty of ventilation, so the evaporation from the honey can escape. Wire cloth, of course. If nights are cold, or a cold wet time comes, I'd close up, and perhaps build a fire. If you've been thorough about it, it will take care of itself in winter; but be sure not to have it where steam will settle on it from a warmer room.

Illinois. N. C. C. MILLER.

Some of our funny fellows will probably tell you to eat it up before it sours. As to extracted, be careful and not extract it too green. Then take immediate care to have its surface exposed to a warm drying atmosphere, that it may ripen up instead of deteriorating. As to sections, there are three things you can do. You can see to it that they go speedily into the hands of customers who will eat them up. You can ripen them in a hot airy room. You can do as I do—leave them on the hive until they are ripe enough to be safe for keeping. Your honey will not look quite as well if you follow the latter method; but if you sell steadily to the same customers, the fact that your honey does not spoil will count in your favor. I have in mind one grocer who sometimes goes without honey when he can not get a supply from me, just because he has learned that extra-white honey sometimes spoils on his hands.

Ohio. N. W. E. E. HASTY.

[There seems to be a uniformity of agreement on this question; namely, keeping honey in a warm dry room, and having it thoroughly ripened before taking it from the hive. Mr. Elwood makes a point, perhaps, that has not been observed by many before. Honey is certainly deliquescent—that is, it seems to have the property of taking up any moisture there may be in the air. For that reason it should be put as near as possible where there is no moisture.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FROM COLORADO: ALFALFA HONEY, ETC.

Having been a great lover of bees for several years, I concluded to start in this year for the profit there is in the business, not for pleasure alone. So when starting out I concluded to keep a record (which I think every one ought to). On the 17th day of June, at noon I had my first swarm in a hive ready for business, and in nine weeks I had taken from that hive 36 one-pound sections of the finest alfalfa honey that was ever put up. Besides this they had made 12 frames (odd size) full for brood-nest. I took out three frames, and weighed them, and found they weighed just 4½ lbs. each, making 52 lbs. of brood comb, and 36 of surplus. I find it to be just 88 lbs., or a fraction less than 9 lbs. per week. The rest of my apiary is in Wisconsin; 1½-story eight-frame hives, but I don't think I shall like them, on account of the bees propolizing too much on them, and also making a great deal of burr and brace combs, which I find very inconvenient in handling the supers. I think I shall try the Dovetailed hive next season.

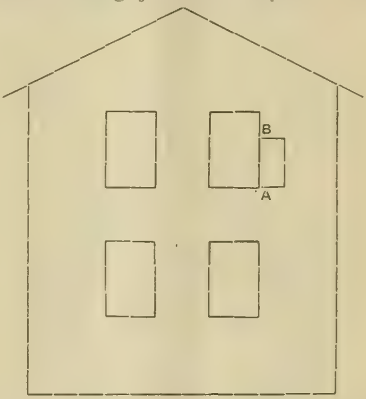
I occasionally see something in GLEANINGS protesting lightly against alfalfa honey. But I come boldly to its defense, and ask such persons to just call around to my Platte Valley apiary and taste some of the most delicious, most beautiful, soul-satisfying nectar ever gathered by the busy little bee. For my part, I can't see any thing wrong with it whatever.

I was very much interested with Bro. King's communication from Arizona, in August 1st GLEANINGS, and in his description of that lovely valley. I would ask him if he was ever through the Platte (or Nebraska) Valley. It very much reminds me of his description of that one, insomuch that we irrigate, and raise immense fields of alfalfa; yet the fruit he spoke of is not produced here, yet we far surpass any other country for potatoes. The writer and brother have in only thirty acres this year, while a great many have in twice as many, and some three times. THEO. V. JESSUP.

Greeley, Col., Aug. 21.

HOW TO GET A COLONY OF BEES OFF THE SPACE BETWEEN THE SIDINGS OF A HOUSE.

I have a colony of bees in the north end of a house. They are between the plastering and outside boarding. They have been there since about the 6th of July last. Below is a rough diagram showing just how they are situated.



A is the point of entering, which is about ½ inch square. It is about 10 or 12 feet from the ground. *B* is where they have made their comb. Distance between plastering and outside boarding is 4 inches. They are pure Italians, and I wish to save them. How shall I go at it to transfer them into an L. hive?

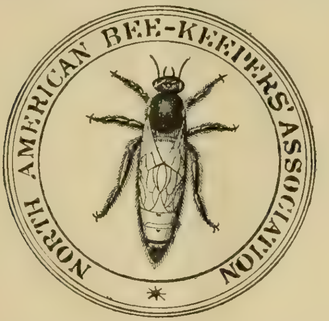
O. C. BENEDICT.

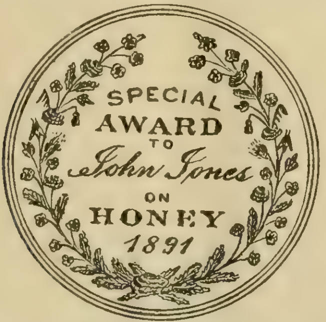
Atlantic, Iowa, Aug. 30, 1891.

[It is desirable not to mar the house, and therefore I would suggest that, after removing both window-sash, you cut out carefully that part of the casing that is opposite the bees. With a small bit, so as to make a small hole, and a key-hole saw, you can do the job so as not to mutilate the woodwork. After smoking the bees a little, proceed to cut out the combs with a long knife (a bread-knife, say), and then brush out and smoke out the bees. You probably can not get out *all;* and to save these we would put on a bee-escape at the entrance, so as to shut them out as they come forth. Replace the piece cut out of the casing, and the sash will conceal the saw-marks. In sawing out the piece, the saw should be made to cut on a bevel, in such a way that, when the piece cut out is put back, it will rest against the bevel, or shoulder, and there nailed. It would be better, after fitting the combs of brood into the frames, to move bees, hive, and combs, to a location about two miles away, so that they will stay in their new location. Where the colony is located between the two walls remote from any sash, you could trap out the most or all of the bees, with a bee-escape; but then, how about the combs and brood? There is no way to get this out except by making an opening.] E. R.

HONEY EXHIBITS.

Honey exhibits should now be more magnificent than ever. The new honey medals are now ready for delivery, and two of them will be sent to each affiliated society, by Secretary Dadant, at the earliest possible moment. They are furnished without cost to the local societies affiliated to the North American Bee-Keepers' Association, and will be awarded by the local officers, one for the best exhibit of comb honey, and the other for the best exhibit of extracted honey. Now for good-natured rivalry! Let the best win.—*American Bee Journal.*





THE NEW MEDALS READY FOR DISTRIBUTION.

The secretaries of the affiliated societies are requested to forward their present address to C. P. Dadant, Hamilton, Ill., Secretary of the North American Bee-keepers' Association, so that the medals furnished by the North American, to each affiliated association, may be sent to them. They will be forwarded by mail, in registered packages. C. P. Dadant.

Hamilton, Ill., Sept. 22.

YELLOW CARNIOLANS NEVER PURE.

A lady bee-keeper has just written us, asking which we prefer, dark or yellow Carniolans. We know of no pure Carniolan bees which are yellow. Mr. Frank Benton, who has been among the Carniolans, in their home in Carniola, and examined them, should be undoubted authority on that point. He says there are no yellow Carniolans. We have bred them for years on our isolated islands in the Georgian Bay, and there were no traces of yellow, so long as they were kept isolated; but when bred in our own apiary, or in the most isolated places we could find on land, we were unable to breed pure ones, and traces of the yellow race could frequently be found, proving that they were hybrids. While some of our Carniolans give considerable promise, we do not think that they in their purity are equal in all points to our best Italians, or the best yellow races, as there has been so much Cyprian and Syrian blood scattered through our country, also through Italy, the home of the Italians, that we believe there are very few pure Italians, although called pure Italians from their general appearance. It is easily seen how difficult it is to keep a race of bees pure, when there are unquestionable cases of mating between different races, for ten and fifteen miles apart; but the crossing is no detriment so far as honey-gathering and dollars and cents are concerned. Hybrid bees of the best strains give as good or better results than the pure bees of any strain.—*Canadian Bee Journal.*

[It was some seven years ago that we visited Mr. D. A. Jones's islands in the Georgian Bay, where he was rearing Carniolans. We will vouch for Mr. Jones's statement, that the Carniolans then on the islands were black. The fact that they could be kept so while isolated is rather significant, and is a pretty good argument to show that the real Carniolans are black and not yellow.]

A GRAND SUCCESS FOR A BEGINNER; HE BUYS 100 COLONIES AND SECURES 12,000 LBS. OF HONEY.

This is my first experience with bees. Last spring I purchased 100 colonies; and besides "learning the ropes" I have taken 12,000 lbs. of extracted honey, thanks be to the bee-publications, and glorious climate, and the kindly suggestions of neighbor apiarists.

H. E. Wilder.

San Bernardino, Cal., Aug. 10.

[Well, well, friend Wilder, you have indeed done well. We usually expect that, when beginners go in so heavy on bees for the first year, they will lose one-half their bees in less than six months, and be a good deal sadder but wiser. We are glad you are not only wiser but happier, and we extend our congratulations.]

RED-CLOVER BEES AHEAD.

Red-clover Italian bees, 100 lbs. comb honey in sections per colony. Yellow Carniolans, per colony, 80 lbs. in section honey. Italians, per colony, 60 lbs. comb honey. Blacks, per colony, 28 lbs. comb honey. The bees are booming at present. Thomas Oberlitner.

Deshler, Ohio, Sept. 15.

BASSWOOD HONEY IN TEXAS.

You ask where we get linden honey so far south. Why, friend R., there is a section of linn hummock, about a hundred miles from the coast here, that is as fine, I suppose, as any you ever saw. Some trees are 3½ feet in diameter.

W. W. Somerford.

Navasota, Texas, July 15.

QUEEN-REARING A LA DOOLITTLE A SUCCESS.

You ask for the experience of those who have tried the Doolittle plan of rearing queens; and as I have reared a considerable number that way this summer I will report. When I first read Mr. D.'s description of his method I was not favorably impressed, but concluded to try it, and now use no other. It certainly gets fine queens.

At first I was not very successful in getting a good per cent of the prepared cells started and completed by the bees; but I have experimented carefully, and now succeed in getting from 40 to 90 per cent started, and that in the upper story of a strong colony having a queen below, using a queen-excluding honey-board of course.

I tried giving the cells to a queenless hive to start, also putting the queen above the honey-board and cells in brood-chamber to be built, but found that, if the hive was properly prepared, just as many would be started in the upper story, and the cells almost invariably contain dried lumps of royal jelly after the young queens hatch, showing that the brood-supply is abundant. The preparation I have found necessary is, to put a couple of frames of brood, one hatching and one unsealed larvæ, above the queen-excluder the day before introducing the cells. I find that a colony will seldom start as many of the second lot of cells as of the first.

I give twelve cells to a colony, believing that a small number will be better fed than more. When honey is coming in freely, and the bees get crowded for room, they sometimes build comb over and around the cells, if they are left until ten days old. J. WEBSTER JOHNSON.

Tempe, Arizona, Sept. 8.

IMBEDDING FOUNDATION WIRES WITH LAMP HEAT; GEO. E. FRADENBURG TELLS HOW HE DOES IT.

Shortly after Miss Wilson gave her plan in GLEANINGS, of imbedding wires in foundation by means of lamp or gasoline-stove heat, Geo. E. Fradenburg, Kansas City, wrote us that he had previously sent us a letter on the subject. Although we have not yet made the plan a success, we are glad to publish his letter on the subject under date of Jan. 18, 1891:

I do it with a lamp with a piece of tin over the top; the tin has a slot cut in the center, which directs the heat on to the wire. I use a Rochester lamp, turned down quite low, and a scalloped chimney, which gives a good circulation with the tin on the chimney. When the frame is passed moderately fast over the lamp, only the foundation along the wire is slightly melted, and runs down on the wire.

GEO. E. FRADENBURG.

Kansas City, Mo., Jan. 18.

HOFFMAN FRAMES: TESTIMONY FROM ONE WHO HAS USED THEM 15 YEARS, AND LIKES THEM.

I have used a frame similar to the Hoffman, for fifteen years. I like the spaced frames better than loose ones, especially in moving from place to place. The top of the frame I use is similar to the American frame. The frame makes the honey-board. As to the ends of frames, I don't see any particular need. The top, if made true, will hold the frame to its place. The outside combs that Dr. Miller speaks about can be obviated by placing a ¼-inch strip against the side of the hive; then the outside combs will be right. As to handling combs with fixed distances, it can be done much quicker if bees are on the edge of the frame. Pinch the bees, and then let them have time to crawl away, and there need be very few mashed. There is no gumming where the end rests on the rabbet. The whole set of frames can be shoved at once, or any number. I am satisfied the Hoffman frame, or some frame with fixed distance, is the coming one.

GEORGE BRIGGS.

New Sharon, Ia., Aug. 24.

BEE COUNTRY UP IN THE MOUNTAINS OF CALIFORNIA.

The honey season here in the mountains (elevation 2500 feet) is practically closed, as the bees will not gather more this season than they will need to winter on. The crop was not equal to that of last season, per stand, but the increase in apiaries and stands in this community more than made up for the short crop. The black buckwheat, upon which they mainly depend for summer and fall pasture, has ceased blooming earlier than usual. Our nearest neighbor, H. G. Bovee, extracted 5 tons from 100 stands. A. L. Hubbard, an enterprising young man, is starting in the business, and took 1¾ tons from 30 stands. This is quite a honey region, and there are already a dozen bee-keepers in this community. They depend solely upon wild flowers for their pasture.

Ravenna, Cal., Sept. 8. W. S. DEVOL.

CLOSED-END FRAMES PERFECTION.

Dr. Miller was thinking it time for reports of closed-end frames, and he is right. With me they are perfection, as made and used by myself; but I bought 100 of a dealer, and they are 100 too many. The ends of mine are ten inches long, and reach from the bottom-board to the cover, and can not be glued tight. I have no trouble with their killing bees, as I handle them mostly two or three at a time, or by whole hives. J. C. LILLIBRIDGE.

Fort Allegany, Pa., Sept. 5.

HOW MUCH CLEAR WAX CAN BE OBTAINED FROM A POUND OF COMB?

Please tell me about how many pounds of old combs that are clean make a pound of wax.

Oneonta, N. Y., Sept. 7. C. E. GIFFORD.

[Much depends upon the age of the comb or combs to be rendered. You would get more wax from combs built from foundation than from those natural built. From the average combs you would probably get from 60 to 80 per cent pure wax.]

TWO QUEENS IN ONE CELL.

I found a queen-cell with two queens in it a short time ago; they were perfectly formed, but had got so crowded in the cell that they could not eat their way out, and died.

The honey crop in this vicinity is not large. Ours is only fair, and we have allowed no swarms. M. H. HUNT.

Bell Branch, Mich.

A VISIT TO THE LEININGER BROS., AT FORT JENNINGS, OHIO.

They have the best-looking five-banded bees I ever saw. I got six queens, and we did not use smoke nor did we get a sting. They are the best-natured bees I ever handled, and I have kept bees 16 years. E. S. HARVEY.

Cavett, Ohio.

SUGAR VS. HONEY FOR WINTER FEED.

Which is the safer to feed for winter stores—good honey, or syrup from granulated sugar? Is there any choice? MRS. J. R. FISHER.

Rushville, N. Y., Aug. 18.

[Feed sugar syrup, every time.]

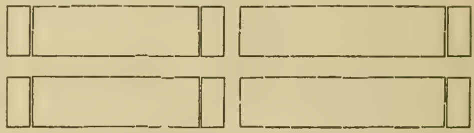
SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LIKE TO RAISE CROPS.

Although the weather is almost like summer, it behooves us to think of the frost that is sure to come sooner or later. Two weeks ago we feared we should not get any tomatoes for canning; but at this date, Sept. 23, our tomatoes are ripening as rapidly as I ever knew them to, and our canners are at work full blast. Cucumber pickles are growing so rapidly that, before I knew it, the boys had several bushels too large for pickles, and they were cutting them open and feeding them to the chickens. They told me they had offered them for 25 cts. a hundred, but they could not sell them all, and there was not any use in picking them. These are from seeds that were planted about the middle of July. At one time we thought we should not get a pickle; but here we are with our market overstocked. Some way I rather enjoy taking risks in planting late; for when we have beautiful mild weather without frosts it is such fun to get a crop when the croakers said I was wasting my time. Talking about pickles and cucumbers reminds me that a friend* who visited us a short time ago made the remark that he had sold *sixty dollars' worth* of cucumbers from *three hot-beds* each 30 feet long.

WHAT SHALL WE DO WITH OUR SASHES WHEN OUR HOT-BEDS ARE UNCOVERED?

And this brings to mind a problem that has been before me for some time. I presume by far the larger part of us who make gardens will have to depend upon hot-beds and cold-frames rather than greenhouses; and even where we have greenhouses, the movable sash often plays a very prominent part in our work. We have now six large beds, from 100 to 150 feet long, arranged to hold sash. There are plank walks each side of the beds, so that even in muddy weather two men—one on each side of the bed—can strip off the sash very rapidly. Now comes the question, "Where shall we put them?" Last spring we piled them up in a heap, one on top of the other; but during a big wind, some way the top sash on the piles perhaps three feet high were blown off and carried some distance, of course being ruined. Where the piles were not more than two feet high, or, say, as high as the boards to the hot-bed, the wind did not disturb them. Well, where shall we have these piles of sash? If the hot-beds are not very long, we can easily pile them up at each end. The friend mentioned above had his three beds each 30 feet long. As the orthodox dimensions of movable sash seem to be 6 feet long by 3 feet 4 inches wide, it would take about nine sash to cover a 30-foot bed. To make the number even, suppose we say 10 sash for a bed 33 feet long. This would let the sash lap over the ends of the beds so as to make all tight. In stripping off the sash, five of them would be carried to one end and the other five to the other end; and the men who move the sash would have to carry the center ones only 16 feet each way. A couple of good stout fellows would pile the sash right up, and finally take the whole five in a heap, and set them down at the end of the bed. Perhaps cutting our beds up into lengths of 33 feet each is wasting considerable ground, especially where land is high and expensive, as it frequently is where hot-beds are worked. In that case a bed can be made to hold 12 sash, 14, or even 20, providing it is better to carry the sash a little further than to have so much waste room in order to make a place to pile them up.

One reason why I have gone over this is because I should like to have our readers who are using hot-beds and cold-frames say what length they would choose for each bed, and also to tell us where they are in the habit of placing the sash when off from the beds. It is very handy to have a few light shutters made just the size of the sash. These can be placed over the sash in very severe weather, to protect cucumbers and tender things; and when the sash are off and piled up, a shutter on the top of each pile of sashes protects them from hail, stones thrown by children, base balls, and last, but not least, big dogs. Another thing: Every little while our small boys, when they want to get across the beds, will walk on the soft earth. The temptation to do this is much greater when the beds are long. Now, the openings cut through the beds in order to get a place to pile the sash should also give room enough for one to get through, say leaving a path a foot wide between the sash and the next bed. If we make our beds 33 feet long we shall have ten sash in a pile. If they are made of two-inch lumber they will be less than two feet high, even with a shutter on top. To protect them from dampness I should prefer to have the bottom one raised three or four inches from the ground. When arranged in this way the part of the garden devoted to hot-beds and cold-frames may look tidy, neat, and attractive, whether the sash are either off or on the beds; and I confess than hot-beds and cold-frames often present any thing but a tidy and pleasant appearance to passersby.



ARRANGEMENT OF HOT-BEDS, WITH PLACES TO PILE UP THE SASH.

Let the diagram above represent four hot-beds 33 feet long. At each end of the beds the locality of the piles of sash is shown. If it takes ten sash to cover each bed, there will be a pile of five sash at the outside ends, while the two middle piles will have ten sash each, five from the bed on the right hand, and five from the bed on the left hand. The walks should be either plank, cinders, gravel, or some material easy to walk on while carrying heavy burdens. This is important, because the sash frequently need to be moved during a rainy time, and sometimes when the paths are full of slush and snow, especially to get the best results from hardy vegetables. The width of the walk can be arranged according to the expense of the ground. We find 16 inches a very comfortable width to work. On the diagram we figured only 12 inches at the sides of the piles of sash in the center. In regard to damage from wind, I have never had a sash blown off when the whole bed was covered entire. If, however, the sash were tilted or spread so the wind gets under, they are apt to be moved. In very severe weather the paths may be filled with coarse straw and manure as an additional protection against frost. I hardly need add, that we must have perfect drainage for our beds as well as for our paths. The manure for hot-beds costs too much money to permit its good qualities to be washed out by rain or standing water. After the plants have had rain enough we often put on the sash to keep off the surplus. Where every thing is arranged so as to work handy, I think this arrangement will be cheaper than any form of machinery. In fact, I wish our greenhouse could be covered and uncovered as cheaply and quickly as our hot-beds with the arrangement above. There is a drawback about hot-beds, I know—we can not, as with a greenhouse, get inside to regulate the temperature; neither can we work inside during stormy weather. Notwithstanding this, the benefit of having the sash stripped clear off when the weather will permit seems to me to overbalance the other. Perhaps, however, in many cases it would be profitable to have both the greenhouses and a proper number of hot-beds and cold-frames to go with them.

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* Emery Ransom, Amboy, O.

THOSE GREAT BIG ONIONS.

Our friends who have secured a crop by the "new onion culture" will need to be a little careful about getting them cured properly or they may be troubled with rot. Some of our Prize-takers have utterly refused to be cured dry and hard, even during this beautiful drouth we are having, unless we first peeled off the damp outside covering. The rot seems to commence on the outside; but if you peel off all that is wet and then lay them in the sun, being careful they do not get rained on, they will make hard dry onions. It is only occasionally that we find such a one; but during a spell of damp weather I can readily imagine there will be great trouble in curing the crop. Once get them dry and hard, and then keep them in a cool dry place, and we think you will have no trouble in keeping them for at least a reasonable length of time. Onions of all kinds seem to require a tremendous amount of drying. We spread our onion-sets out in the sun on shallow trays, and carry them in when the barometer gives the least indication of rain. After they are once dried and hard, you will not have much trouble. We need to be very careful about storing onions or onion-sets in any bulk so they may get damp or heat. We have been very successful by using some frames made of lath. These are put into a cool dry room, about six inches from the floor. Now put on, say, six inches of onions; then another frame of laths; more onions, and so on. This arrangement allows the air to get through them in every direction constantly, and they seldom get damp enough to start to grow. Our Ohio experiment station gives the preference to White Victoria and Spanish King, or Prize-taker, for starting in greenhouses or cold-frames. The White Victoria seems to be about the handsomest onion in the world; but I suspect it is not a first-rate keeper, unless cured as directed in the way I have indicated. Better sell your onions off as fast as they can be cured in good order, unless you have had some experience in keeping them. An unused greenhouse is just the nicest place in the world to cure onions, providing you have plenty of doors and ventilators so you can let the air circulate freely. You can arrange your trays of onions so they will have all the benefit of the sun, and still be secure from rain. The sash from a hot-bed or cold-frame can be used to cover them with in the same way; but if you want them to dry they must have lots of air, as well as heat from the rays of the sun.

TOBACCO DUST FOR MELON-VINES, ETC.

I have good reason to think that, while this failed in our hands last season, it was because we did not put on enough of it. Our Ohio experiment station says, "Put a shovelful on a single hill of melons or cucumbers." If you cover the young plants all up it will not hurt them. The bugs will not be likely to dig down through the tobacco as they do through the mellow soil. If a rain comes and washes it away, or takes the strength from it, put on another shovelful. They call the tobacco worth $25 a ton as a fertilizer, to say nothing of its qualities for repelling insect-enemies. From what experiments I have been able to make, I am inclined to think they are right about it.

MYSELF AND MY NEIGHBORS.

Cast thy burden upon the Lord, and he shall sustain thee. He shall never suffer the righteous to be moved.—Ps. 55:22.

I have for years supposed that I understood the admonitions of the beautiful little text at the head of this; and I supposed my faith was strong enough to bring all my burdens to Christ Jesus and cast them at his feet, and—*leave them there.* But my recent experience has taught me something in this line. When the doctor absolutely forbade all thoughts of business, I promised obedience; and when he gave directions to the people of the factory that I was not to be troubled nor even consulted, I assented. Of course, he did not forbid their answering any questions that I might ask, nor was any attempt made to deceive me. I was simply to be ignored unless I inquired after certain things; but with this he insisted over and over again that I was to give up business entirely, not to worry nor question, and to stop thinking, so far as it was possible for such a restless creature as myself to do so. I promised obedience; but very soon I began to repeat over and over again my brief old familiar prayer, "Lord, help!" My fever was a nervous fever, brought on somewhat, perhaps, by weeks of too much care and responsibility; therefore absolute quietness and rest were the things to be most desired. The doctor is an old friend of mine. In fact, I have been more or less intimately acquainted with him for thirty years; so we good-naturedly joked together, and he talked to me sometimes quite plainly. You have had experience, no doubt, with people who could not be taught any thing, because they "*knew it all*" *already.* Well, as I look back at the experience of the past few weeks I feel ashamed to be obliged to admit that, in many respects, I was one of those very chaps who "knew it all." While I thought I was a perfect pattern of docility and obedience to the doctor's directions, the real truth was, there was a great deal of self-conceit that had to be got out of the way before the doctor could give me any real help or aid. One reason why I want to tell you this is, that I fear there are many others who sadly err in this way. In fact, here on these pages we have been discussing doctors and medicines pretty freely. I for one hereby humbly *beg pardon* of the many physicians who are friends and readers and contributors of GLEANINGS. One of my first experiences was with this same fever thermometer that so delighted me when I first saw it. Of course, it is desirable to break a fever when it can be done; and accordingly I was given anti-fever remedies. The doctor's instructions were, that the powders should be given only when the fever thermometer ran up to or above a certain temperature. When I volunteered to manage it myself, he rather objected to it. He said the nurse had better have it in charge. But I was so sure I could manage it to "a dot" that he reluctantly gave way. Well, the first thing I did was to make a blunder in reading the scale on the instrument, and to take three powders when they should not have been taken at all. As a consequence, it threw me into a drenching sweat, and weakened me somewhat. When the doctor came he looked a little bit cross, and said that the nurse should give the medicine, and not the patient. I suggested:

"I suppose, doctor, because they are less liable to make blunders?"

"Yes, and there are some other reasons."

"What other reasons, doctor?"

"Well, for one thing, a person who is sick is naturally inclined to be nervous, and to worry;

and if symptoms are bad, and his fever runs away up, both experience and good sense indicate that he should not be told of it."

"On the same principle, doctor, if there were a probability that the patient would never get well, it would not be best, as a rule, to tell him so?"

He assented. As I recollect about it, I rather think he was quite anxious that I should stop talking. I remember that, at about that time, he forbade my seeing visitors, except my own relatives. Well, I had not been real sick at that time, so I replied something like this:

"Well, doctor, you need not be at all afraid to tell *me* the whole truth when the time comes, if such a time should come, that it looks doubtful whether I ever get well. I am ready to go, and have been for years, when God sees fit to call me from my labors here on earth."

He did not make any reply, or, if he did, a very brief one, so I asked him if he did not believe that it was safe to trust me to know my exact condition at any time. As nearly as I can remember, his answer was something like this:

"Mr. Root, I believe every word you say—at least, I believe you are perfectly honest and sincere in what you say; nevertheless, I do not believe it best to tell you every day when your symptoms are unfavorable, especially since the main thing before us just now is perfect quiet and rest. If you can think of any texts of Scripture that will help you to be at peace, to be guided by your friends and physician, they are the texts you need."

I suggested, "Take no thought for the morrow."

"Yes," said he, "that is just it exactly. And that one about the lilies of the field, that toil not, neither do they spin. That is what you want to do just now."

Somebody told me afterward that he said that, if he could get me to stop thinking and talking, there would be some chance of getting the medicines to do their work.

Now, friends, my conscience troubled me a little afterward because I had been so positive that death had no terrors for me; and I remembered the little text, "Let him that thinketh he standeth take heed lest he fall." I thought also of Peter when he said, "Lord, I am ready to go with thee, both into prison, and to death." Not many hours afterward my faith was severely tried. When one thinks of it, the whole matter was so ludicrous that it sounds like a joke to laugh at; but I tell you it was *to me* one of the most serious conflicts, or hand-to-hand fights, with the powers of darkness I ever encountered.

About this time the doctor was somewhat puzzled over a kind of nervous chills that came daily or oftener before the fever. I had been taking rather heavy doses of quinine at frequent intervals; but it seemed to have but little effect on the chills or fever. He tried, banteringly, to convince me that the chills were a good deal the effect of imagination, or of the nervous state of my system. Imagination or not, when they began to come on they made it lively for the women-folks in getting hot bricks and bottles of hot water, besides all the bed-clothing that could be scraped up. When I told the doctor that these were always heralded by a peculiar ringing in the ears, on a high key, he said that, inasmuch as large quantities of quinine always produce ringing in the ears, he wished to try the effect of suddenly cutting off the quinine for a time. So he directed me to stop taking it after a certain hour, and left a couple of powders to be taken—one at noon, and the other at supper time. I remember of hearing him say something about some unpleasant "fancies" that would result from cutting off the quinine so suddenly; but he said the powders would quiet my nerves. I wondered what he meant by the word "fancies," but dropped the matter and thought but little more about it. Right here is something I wish to emphasize; therefore you will excuse me if I digress a little. I remember once hearing a father remark that he had just taken his son through a long siege of typhoid fever, and saved his life. In speaking of the medicine the doctor left, this man said he gave a *part* of it to the patient, and the other part he threw out of the window, regulating the matter according to his own judgment. I thought at the time that it was quite a smart thing to refuse to take *all* the stuff that doctors usually prescribe. I am ashamed of this last remark of mine; but nevertheless, for a good many years I have held such notions more or less. After the doctor was gone, my wife prepared a powder. I remember of thinking that it was a pretty-good sized one, and that it looked disagreeable, and smelled disagreeable to my feverish senses, as she brought the cup to me. It was dissolved in perhaps a quarter of a teacup of water. Now, my wife has frequently complimented me by saying that I could take any kind of medicine that was ever prescribed for anybody, without making even a wry face. But this dose was too much for me. After repeated trials I drank about a half of it, and then directed my wife to throw it away, telling her I could not possibly take any more, and I was sure I had had plenty. At night I felt less like taking the "villainous stuff" than I did at noon; and when I told my wife I was not going to try to take it she did not say very much, perhaps relying on my superior (?) wisdom under such circumstances. I remember that I felt very sick and bad that evening; but I concluded that, when I got to sleep, "tired nature's sweet restorer" would take care of it all. To my consternation, however, I found sleep did not come as usual. I can never tell the experiences of that night; but I will give you a little glimpse.

As soon as I closed my eyes I was in a terrible muss with somebody straightway. At first I discovered a lot of good wax thrown out in the grass and weeds back of the factory. I gathered it up and demanded to be shown the hand who had thrown away good wax like that. In my dream—for it was a *sort* of dream—Ernest tried to quiet me by assuring me that it was not good wax at all—it was only dirt. But I insisted that there was a dollar's worth of as good wax as was ever seen. When I got sufficiently worked up to awaken, I would glance at my patient wife and around the room, to assure myself that it *was* only a dream. Then I turned over and tried it again; but it was a constant repetition, only things were growing worse and worse. The doctor had bade me be quiet, and not worry, and here I was *wearing myself out* over purely imaginary evils. Before midnight, worse troubles came trooping along. I was rolling and groaning and tossing in my bed, and I began to fear that I should soon be entirely delirious. While strange sights were passing before me, I remember that my attention was suddenly attracted by a beautiful *blue* snake. The intense shining brightness of this blue riveted my attention. Pretty soon there were *two* blue snakes; then there were *dozens*, then hundreds and thousands. They stretched away in the distance as far as the eye could reach, all crawling toward me. Then came snakes of other colors, and I began to think of delirium tremens. Why should *I. A. I. Root*, be afflicted with *this* terrible malady? Soon evil spirits began to torment me. I call them spirits, because they assumed the garb of my intimate friends until they roused me to a frenzy, and then they laughed and jeered to think how well they had succeeded. One of them would tell me that it was mail time, and asked me to read a heap of letters; and with commendable patience, sick and weary as I was, I commenced the task. Then I remembered that the doctor had said that I was not to read any letters or any thing else, and turned to reprove the one who brought them, when roars of fiendish laughter met my ears. They vexed me in all sorts of ways until I grew desperate and began to chase them away. At this they laughed and yelled, and seemed to enjoy it more than ever. I was getting highly delirious. My wife insisted on sending for the doctor; but I assured her that doctors could do me no good. They might give me morphine, but I would rather have my senses than to be lulled by any such drug. During the night the chills also came at frequent intervals. They seemed especially to affect my right side, and excruciating neuralgic pains were shooting all through it. It has been for many years peculiarly sensitive. Finally something put it into my head that this side had received a paralytic stroke, and that I was not only crippled in body but in mind, and should be so for all time to come. At this stage of proceedings, somebody who seemed to have authority reproved my imaginary tormentors, saying that it was a shame to have sport over anybody who was afflicted and suffering as I was.

Some time before, I had noticed among the snakes a very handsome light piece of hempen rope. In our work on the grounds we often have use for a bit of chain or a piece of rope; and as I like good tools I have also a liking for pieces of strong rope or cord, especially such as is at the same time soft and pliable, and can be easily knotted. This piece of rope was of such fine quality, and looked so very handy, that it attracted my attention. I wondered what it could be doing among the snakes, but finally thought no more about it. This personage who seemed to have power to banish even the spirits of darkness then commenced talking with me something in this wise:

"Mr. Root, you said, not long ago, that you were ready to die when your time came. Well, I suppose many a man, when he has become worried and worn out with the cares and trials of life, has felt just as you do; but you, perhaps, did not reflect that, instead of dying at once, or perhaps in a few days, you might be called upon to live months or years—yes, to live, even though life has become a burden to yourself and all your friends. You have already received a stroke of paralysis, and may be you think death is at hand. But, my dear sir, have you considered that you may be called upon to live for months and even years, crippled in mind and body the way you are now? No doctor can help you, for how can he furnish a medicine for only *one side?* In your prayers a while ago—oh, yes! I heard them all—you asked if there were any help or any way out of all this trouble. But you will get angry if I suggest to you that there *is* a very quick and speedy way out of it all, and only just *one* way."

I did not quite know what he meant just then, so I kept on listening to him, and he resumed:

"You believe that God answers prayer; but I want to tell you that God never has and never will answer prayer under circumstances like these. Why, you yourself have known of the most devoted Christians who suffered for years just as you are suffering. Did God hear their prayers for relief? Not at all."

I do not think that, while he talked with me, he looked in the direction of the rope at all; but just then it came to my mind; and on glancing that way I discovered a neat slip-knot at one end, that I had not noticed before. For one brief moment my mind did consider that that bit of rope would cut short all *bodily* torment at least; and it seemed as if it would not take more than a second to tie just the one knot that was needed. Even in my delirium the fearful poison was beginning to get just a little hold on me. I roused up, however, almost instantly, and said, with all the energy I could, "Get thee behind me, Satan." And he was gone. His imps, however, came back and tried me even more sorely. One of them suggested that I dare not pray any more, since, in my anger toward them, I had used fearful oaths; and for a time they almost made me believe it was true; but I kept on praying.

Let me digress a little. For perhaps a year, or may be two years, after my conversion I used to dream of getting into a passion and of going back to the old life, rejecting Christ Jesus, and rejecting every thing. At such times I would frequently awake in great distress of mind; but when I found it was all a dream and only a dream, how I used to thank God it was *only* a dream and that those times were past! In a little time longer, however, I began to pray, even in my dreams, when temptation came; and pretty soon dreams of blasphemy toward God vanished for ever. The adversary seemed to say to himself, "Well, there isn't very much use in hanging around a man who begins to pray, even while he is asleep." And let me say to you, my dear Christian friend, that, if you are in the habit of being troubled with similar dreams, it indicates, or at least it seems so to me, that your heart is not yet quite right in the sight of God. Dreams are but a shadow or reflection, as it were, of our daily lives. Of course, our physical health has something to do with this, and this part of it I am coming to presently. In my delirum I kept praying. My mind ran over the passages in the Psalms where David urges God to *make haste* to deliver him; and I remembered how plaintively David many times plead with God to hide not his face from him, and not to turn away on account of his many iniquities. So far in my experience as a Christian, prayer for deliverance from bodily pain, when it gets to be more than I could bear, has always been answered; that is, either the pain has been lessened or grace has been given me to bear it; and I remember, during that night of suffering, of praying earnestly something like this:

"O God, to thee I come. Thou who hast delivered me in times past from all trials and troubles, be thou my stay. Save me from the snares of the evil one. In thee I trust, and to thee I come."

After this, grace seemed to be given me; and notwithstanding the evil spirits that still seemed to hover around, trying to tempt me, another presence seemed near; and when I was worried and anxious for fear that rebellious thoughts *had* come into my mind, when I was sorely tempted, a voice full of comfort and assurance seemed to say to me, "No, child; no blasphemy toward God has ever passed your lips since the time you chose Christ Jesus for your Savior." This seemed to satisfy me, and I mentally repeated, "Thank God, thank God for that." About this time, in response to the urgent solicitations of my wife, I consented to have the doctor sent for. I think it was just getting daylight when he arrived. Under the clear light of day I felt somewhat ashamed of the fuss I had been making; but still I knew something was wrong, and I told him I thought I had received a paralytic stroke during the night. He asked me where I was paralyzed, and I told him it was my right side.

"But," said he, "you can raise your right arm and your right foot, can you not?"

"Oh, yes!" said I; "but still there is something the matter of my whole right side. My right eye seems twisted, and I can not see straight with it, and it is affecting my brain, I am sure."

At this he began to laugh.

"My good friend, let us start out in another direction. How about the soothing-powders which I left for you yesterday? Of course, you have taken them according to directions?"

I was reluctantly obliged to confess the truth. He replied something like this:

"Look here, Mr. Root; if you have not been pretty well punished already, I should be tempted to give you a pretty sound lecture; and I believe I will give you a short one, followed by a practical demonstration, even as it is. You are a pretty smart man, and know a great deal; but, my dear sir, there are several things you *do not* know; and there are several things, too, that we doctors know that *you* have not yet discovered. This 'menagerie' you have had during the night that is past, all came by neglecting those little powders that you decided were too 'nasty' to take."

I begged pardon, and promised full obedience in future if he would forgive me.

"But, doctor, you do not mean to say that just those powders, taken according to direction, would have spared me this terrible night of anguish and suffering?"

"Yes, sir; that is just what I do mean. And now if you are thoroughly convinced that your doctor knows what he is about, give us a *proof* of your sincere penitence."

He had laughed me out of some of my troubles, and I was considerably interested in what he was going to do. But I ventured to tell him some of my troubles about there not being any such thing as a "one-sided medicine;" but I was careful not to tell him who *gave* me the idea. He laughed, and said in due time we would take up that part of it also. I remember that, at this time, my wife and Ernest were standing by, full of anxiety. They had been consulting together, so it seemed. Then the doctor spoke:

"Now, Mr. Root, you want to be real sure that it is not a freak of the imagination that is the matter with you. Look at the figures on the wall paper. Are they quiet and still?"

I looked, and the whole of them seemed very much disposed to dance a jig. Something like a moss rose was near to my bed, on the gilded wall paper. As I looked at it, the petals began moving as if they were about to unfold, and glimpses of a lurid light shot out from under the petals, as if they inclosed glowing coals. Some figures, so near by that I could put my finger on them, were so surely wriggling about that I did touch them. When I touched them they stood still, until my finger was removed. I told the doctor what I saw.

"Very well," said he. "Now witness one of the triumphs of medicine. Sit up a little. Now take this glass, which contains the powder you should have taken last night. Don't sip a little and then stop, but pour it all right down *without* tasting."

I do not know but they feared I was going to say I couldn't; for Ernest, who stood by with a dipper of pure water, added some exhortations. But I began to be thoroughly ashamed of myself. I took the glass as directed, and poured down the whole of the bad-tasting stuff at a single swallow. Then I grabbed for the dipper.

"Well, what do you think about it now?" said the doctor.

"Why, I think the water in that dipper is a little the nicest I ever tasted in my life."

"Now," said the doctor, "you can shut your eyes and go to sleep. You can watch the hobgoblins as they hunt their holes, if you choose. But they won't trouble you very long. I will be around about the time you wake up."

Would you believe it, dear reader? I dropped to sleep at once, and did not wake up till toward noon. When I opened my eyes every thing was natural and straight. The figures on the wall paper behaved themselves as all such steady and staid figures ought to do in a Christian family. More than all, I could not remember that, during my sleep of several hours, I had had a single dream of *any* kind. When the doctor came in I was full of enthusiasm, wonder, and surprise in regard to the *new* medicine.

"Why, Mr. Root, it is not any thing *new* at all. Bromide of potassium is as old as the hills, and is in common use for quieting disordered nerves. This remedy is what you need more than any thing else; and very likely it is at the bottom of those chills that have been baffling us. One thing is certain, however—if you ever get out of this nervous state, you have got to stop investigating and exploring and studying into every thing that comes along. Why, I hardly dare to tell you the name of the medicine you are taking, for fear you will ask so many questions about it, and won't let the subject drop until you know all that the books have to say in regard to it."

"But, look here, doctor. Do you mean to say that this bromide of potassium will absolutely stop all unpleasant dreams and nervous wakefulness?"

"Well, I do not know that I have ever seen it fail under such circumstances. But there you go again with your questions."

"But, doctor, if there is a medicine known that will stop bad dreams, it certainly ought to be made known to a suffering world. And you say, too, that it is not an opiate, a narcotic, nor any thing of that sort, and that it will not start one in a bad habit?"

"Yes, sir, I mean to say all this. If you take it in the day time, when you are well, or comparatively well, it will not produce sleep at all. It puts people to sleep only as it did you, when they have been kept awake by disordered nerves. Another thing: If you are put to sleep with opium you can not be awakened very easily; but with the bromide one can be aroused just as easily as from any natural sleep. Now, you really *must stop talking;* and I think that, for the present, everybody had better stay away."

Somebody suggested that the various *ministers* of our town be allowed to see me; but the doctor said that he preferred I should wait until I got better, and then they might call; and I tell you, my friends, the doctor *was right.*

Before I leave this subject, let me touch upon one point. Wouldn't this harmless medicine oftentimes save people from temporary insanity? I feel sure it would. Not many years ago *my own mother's brother*, under the influence of delirum produced by typhoid fever, during the temporary absence of his nurse found means to *take his own life.* One dose of this bromide of potassium would very likely have saved him. I was so much interested that the doctor mentioned, a few days later, he saw a query in one of the medical journals where the question was asked, "Is there a remedy for dreaming?" The editor answered, "Why, to be sure there is—bromide of potassium."

I have now given you some illustrations of the way in which people may make terrible mischief by omitting to take the medicine just because "it tastes bad." By the way, the doctor, a few days after, brought me two other preparations of bromide, made expressly to cover up or conceal the nauseating taste of the drug, and I felt encouraged to think that I was not the only one who pronounced it nasty. One trouble in making it easier to take is, that a sufficient dose, to produce a desired effect, makes nearly half a teacupful, with water enough to dissolve it. Let me now suggest a way in which you can work in *harmony* with your physician. Night after night I slept with such unusual soundness that my wife said it almost frightened her to see me lie so still and hear me "snore," as the latter was very unusual for me; and as it was still quite a punishment to take the medicine, I begged to try half a dose.

"All right," said the doctor; "try half a dose; and then, if you wake up and can't sleep, take the other half."

This I did; and when I found that *half* a dose answered every purpose, then we tried a *quarter* of a dose. This answered generally; but once in a while I had to have the other quarter before morning. Sure enough, the chills began to let go. Quieting the nerves, keeping away visitors, in connection with the other treatment, was beginning to tell favorably. Soon the chills came only twice a day—at about 11 o'clock in the forenoon, and between 4 and 5 in the afternoon. Now, a *good* doctor is constantly hard at work, like a detective. He began searching and questioning as to why these chills should come at these queer hours of the day. My wife was finally called in.

"Mrs. Root, at what hour during the forenoon has your husband been in the habit of getting most used up by nervous prostration?"

"Why, he always comes over to get his forenoon nap at about 11 o'clock."

The doctor's eyes twinkled.

"Now, then, when in the *afternoon* does he get most used up in the same way?"

My wife responded, "Why, he has been for some time insisting on his supper at half-past four, so he would not be so used up in reading the mails that must be put on the train at a quarter after five."

"There we have it," said the doctor. "And your feverish excitement and talk about the 'piles of letters' to read gives us another clew. That letter-reading must be given up. If no one else can do it as well as you do, somebody else must do it as well as he can."

Before long I had the good news to tell the doctor, when he came at night, that I had got through that *one whole day* and "nary a chill." For a while they came every other day; and then they, with the fever, skipped entirely.

Now, my friends, haven't I given you reason enough for the employment of a family physician when one is needed—a physician whom you can respect and trust as you do the rest of your *neighbors?* and why, having once employed him, you should not hamper nor hinder nor thwart his faithful work for your best good by thinking *you* know as much or more than *he* does, about his own legitimate business?

Mind you, I do not mean to recommend any special school or line of practice among physicians. Our medical men, like our bee-keepers, have different ways of working, but they are often quite successful in their different ways. Faith in God includes faith in our "neighbors;" and, if you choose, a physician from among your neighbors—a man whom you can respect and trust, and feel sure he will serve you well and faithfully.

And now, friends, a word in conclusion in regard to our text—especially the latter part of it, where we read, "He shall never suffer the righteous to be moved." When sickness, fever, and delirium come, how far are we responsible? I suppose there is, of course, a limit to human responsibility. A point comes in diseases of the mind and diseases of the body, where the individual is responsible no further. Now, then, how far or to what extent does God permit the prince of darkness to tempt and try his children? Our text answers it—"Cast thy burden upon the Lord, and he shall sustain thee." If you do this, the matter is in God's hands. And during my recent sickness, once or twice I came to a point where I felt like saying, "It is God's affair and not my own. I am perfectly willing to trust the outcome *all* to him." Then came help. Then my overstrained nerves began to get quiet and I began to mend. I thought I had learned the lesson—"Thy will, not mine, be done." But I found there was still more to learn in that line. Some of you may think I am a little visionary in believing that the adversary follows one, even to a sick-bed. Alexander McClaren says, in a recent number of the *Sunday-school Times*, "There are whole packs of wolves snuffing at every fold." This he said in discussing the lesson about the good shepherd. Do you think it is overdrawn? Well, let us turn to God's own word. In the first place, we find, in I. Peter 5:7, something remarkably like our text—"Casting all your care upon him, for he careth for you." The verse following is as follows: "Be sober, be diligent; for your adversary the devil as a roaring lion walketh about seeking whom he may devour."

Now, is it not likely that this same adversary should follow us, even when we are sorely tried by sickness, suffering, and pain? But, may the Lord be praised, we have the plain promise *still* in the words of our text.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

Since reading GLEANINGS I have quit using tobacco. Please send a smoker; and if I ever use tobacco again I will pay for the same.

Bradford, Pa., June 4. E. M. MILLER.

My brother has quit the use of tobacco; and I promise, if you will send him a smoker, to pay for it if he ever uses tobacco again.

Eupora, Miss., June 25. W. B. ENOCH.

You may send a smoker to Jos. Stull, North Webster, Ind. If he uses tobacco again I will see you get your pay. I. R. GOOD.

Vawter Park, Ind., May 27.

Send Mr. W. F. Howard, Lovelace, N. C., a smoker for quitting tobacco; and if he ever uses any more I will pay the 70 cts. myself.

Lovelace, N. C., June 9. D. C. JARVIS.

A friend of mine has given up the use of tobacco, and says if you will send him a smoker he will pay for it in case he ever uses tobacco again. I will go his security.

Altona, Col., June 12. ELLEN STEWART.

Mr. J. E. Dickerson, of Ozan, Ark., has quit; and if you will send a smoker, and he ever uses tobacco any more, I will pay for the smoker.
Ozan, Ark., May 25. J. D. Barrow.

I am sorry to say that the writer has already broken his pledge. I inclose one dollar, as agreed, to pay for the smoker he got.
Wyoming, Ont., May 26. Arch. Duncan.

Please send Mr. U. G. Ballard, of Clermont, Ind., one of your smokers. Seeing your offer in Gleanings he offered me his pipe, and resolved never to use tobacco again. If he does I will pay you for the smoker. Tinsley Tansel.
Clermont, Ind., June 12.

Mr. Virgil McManus has quit using tobacco; and if you will send him a smoker I will pay you for it if he ever uses tobacco again. He has used tobacco a good many years, but he has quit, and quit for good. Chas. D. Farnham.
Fleetville, Pa., June 13.

I am glad to say that I have given up smoking for the last six months, after using tobacco for twenty years at least. I intend to use it no more; and as I see you present a smoker to all who do so, I hope you will be able to send me one. Rob. Dunn.
Fillmore, Cal., June 24.

My husband, O. D. Draper, has been a subscriber to Gleanings for about three years, and has quit using tobacco. I have no fear he will ever use it again. If he should, I will pay for a smoker which I shall be thankful to receive. Mrs. Jane Draper.
Ortonville, Mich., June 17.

I received Gleanings, and am well pleased with it. It gives me much pleasure to read it. I see you still keep up the Tobacco Column. I believe I am entitled to a smoker, as I have quit the use of tobacco for ever. It is one of the filthiest habits; it is *worse* than whisky.
Canton, O., June 12. Wm. A. Rohn.

Mr. Richard Reeder is very thankful for the smoker, and I don't believe I ever saw him better pleased. He tells his friends how he got it, and they look at him wonderingly. He says he sometimes wants tobacco so bad that he takes a stick in his mouth to chew, and the strong desire leaves him. D. W. Rouse.
San Jacinto, Cal., April 23.

The following young men, having heard me tell how you would give a smoker to all who would pledge themselves never to use tobacco again in any form, quit about a week ago, and request me to go their security: W. A. Callahan, L. A. Callahan. If I ever know either of them to use it again I will pay for smokers.
R. W. J. Stewart.
Sonoraville, Ga., June 4.

Please send a smoker to John M. Ehlert, who has, through the influence of reading your Tobacco Column and Home talks in my Gleanings, concluded that this indulgence in tobacco is a stumbling-block to him or any one else who is trying to live properly and exert a salutary influence over his young comrades who so generally use it. He is much interested in bees; and if he ever uses tobacco again I will be responsible, and pay for the smoker.
New Orleans, La., June 10. J. W. Winder.

Six or seven years ago I commenced to read Gleanings. It was sent to my brother, J. A. Dillashaw, and we bought an A B C book. I have read it, and I claim that Gleanings has been a blessing to me. I love to read it, and the book too. It has broken me from a bad habit—that is, using tobacco. I had used it for 15 years, and it did not do me any good, but it did me harm. I have been converted from a filthy habit, and an expensive one too. I will never use another thimbleful of tobacco while I live, so I claim the smoker, if you will send it to me. W. A. Dillashaw.
Bowman, Ga., May 25.

Mr. J. H. Terrell came to my home to-day to learn something about bees. He is just commencing. I asked him if he was taking any bee-paper. He said no. I referred him to Gleanings, also to the Tobacco Column, as he was smoking all the time. I told him I thought if he would subscribe for Gleanings, and throw away his pipe, you would send him a smoker. He seemed to be in a deep study for a moment, and then took his pipe out of his mouth and threw it on the ground, and said, "That is the last for ever." Please send him a smoker. If he ever uses tobacco again I will pay. F. B. Jones.
Howard Lake, Minn., June 30.

I love Gleanings, especially the Home papers that I always read with great interest and joy, because they always ring of a true love of Jesus. I have lived the most of my life in sin (be it said to my sorrow and shame). I was converted in 1889. I had been a great user of tobacco, especially smoking. It had such a hold on me that I had tried time and again, with all my strength, to quit, only to fall deeper than ever. My doctor told me it would surely kill me if I continued in its use, and that he thought it very doubtful whether my constitution would bear an entire abstinence. You see what a hold it had on me. After I had been converted a few days, and had resolved on living a new life, I told my wife I did not believe I could be a Christian and be such an intemperate user of the vile weed. I prayed God to give me strength to overcome, and I quit from that day to this, with all ease; and to-day I thank God for his grace. M. L. Bonham.
Clinton, Mo., June 17.

[Well, well, friends, this is encouraging. When I first saw the array of names from those who were giving up tobacco I concluded that Ernest must have been saving them up for some months back, and then put them all in at once. But in looking at the dates I see that at least 13 of the 17 who have taken the pledge are dated in June, so it seems this must be a sudden start, and I confess I do not know what has called it out. Another thing, almost all of them have taken the pledge as the result of personal work of some friend who goes security. Now, this is still more encouraging. A man is much more likely to hold out where some friend is watching and praying with and for him, and has an interest in the matter. Why, this is real Endeavor work and nothing else. I wonder whether those who are doing this personal work are not members of the Christian Endeavor Society. May the Lord be praised for the powerful testimony in this Tobacco Column this month; and may he give grace and strength to those who are breaking away from the habit, and new zeal and energy, and faith and love, to those who are doing the work. I am going to pray over this, dear friends, and I expect and believe that we shall have a larger report, as a consequence, than we have ever had yet. This is the kind of fighting that I really enjoy. Who can read over this list of letters and pledges, without feeling that God's spirit is in it? Why, a real live battle is going on against tobacco, and yet it is all being done with the kindest and pleasantest feelings imaginable; but the result in the end is, plainly and clearly, "Get thee behind me, *Satan*."]

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both body and soul in hell. . . . Fear ye not. . . . Ye are of more value than many sparrows.—MATT. 10: 28, 31.

EIGHT extra pages this issue.

THE weather in our vicinity has been very warm for the last week or ten days, the thermometer in the shade ranging 80 and above. One day we noticed that it registered 87.

A SUBSCRIBER has sent us a copy of the *American Agriculturist* for August, 1881. A glance through it shows a ladder terminating in a single prong, the same as shown on page 695. Dr. Miller explained at the time that it was an old idea; but it is interesting to know how long ago it was illustrated and described. As shown in the *Agriculturist*, it was designed for fruit-picking; such ladders, therefore, have more uses than one.

ON page 707 J. P. Meyers wants to know what has become of A. E. Manum. We have been officially notified by friend M. himself that, on the 16th of Sept., he was married in Bangor, N. Y., to Miss Hattie C. Barnum. This, we think, will justify the temporary break in his interesting articles. A footnote on the wedding-card informs us that the "out-apiary" which friend M. has found in New York will be the "home" apiary after Oct. 1, 1891.

HERE is an item that was sent in by Dr. Miller for Stray Straws, but it came too late for insertion in that department:

> *The Bee-keeper*, Winona, Minn., is the latest. A name that does not apply to *all* bee-journals would be better.

We would add, that the *American Bee Journal* is very often called "*The Bee Journal*," for short. The name of our new cotemporary is unfortunate, and we trust that our new candidate for the field will reconsider and give us some other name.

THE Australian colonies are about to be admitted to the Postal Union. When they are we shall expect the postage on queens to that country to be reduced from 96 cts., the present amount, to about 40 cts. Now that the mailing of queens across the oceans is a possibility, it will be a great boon to our friends on the other side of the globe. By the way, we are notified of the successful mailing of an untested queen to J. Stormonth, Kirkbride, England, with only two dead bees. The queen has now been laying in the hive for some weeks.

MR. A. DETWEILER, of North Middleton, Ky., says, "Your introducing Benton cage is quite a success. I have not lost a queen this year. With the Peet I lost 50 per cent last year." We have just received a similar letter from our large queen-breeder, Mr. J. D. Fooshe, of Catchall, S. C., adding that he has had wonderful success in sending queens to distant parts of the United States. We had supposed that there was nothing better than the Peet for introducing; but from reports like the above, that are coming in, it looks as if the Benton were the better. All we have to do is to pull the cork, and "we (the bees) do the rest," *a la* Kodak.

OUR bees have been working some on goldenrod, but for the most part are inclined to rob. After examining the colony, the robbers would pounce down in full force at the entrance, and before the guards or sentinels would become aware of what was up, many of them would get into the hive. After closing the hive, to give the inmates timely warning we have tried striking or stamping on the cover. This in many cases brought the guards out for investigation, and the result is that they fairly snapped up their intruders while on the wing. It is not always possible to arouse a colony in this way, especially if they have been smoked very much.

WE do not believe much in finding fault with the railroads and their methods; but here is a case in point where they rather get the "bulge" on us. They will carry a carload of boxed square tin cans from St. Louis to San Diego, Cal., for $212.00; but for an inland point 74 miles this side, on the *same* road, they will charge $44.00 extra. In other words, they will charge $44.00 *more* for carrying it to a point 74 miles this side of San Diego, and simply dropping the car off at that point, than they would for hauling it clear to San Diego, so much further. There is a little inconsistency here that the Interstate Commerce Commission should rectify.

WE have just learned a new way to light the Clark smoker, that is ahead of all. We cram it with our excelsior sawdust, then close the door tight. We next strike a match on the sandpaper, work the bellows, and then hold the blaze directly against the perforations *under* the smoker just back of the front legs. The flame will shoot in, ignite the fuel, and the smoker so lighted is almost sure to stay so. Very often when the Clark is lighted at the rear end it will go out in a minute or two; but when lighted at the front end there is no danger. Now, please do not understand us to say that the Clark is in the habit of going out. When once lighted it is quite sure to hold fire as long as there is any fuel to burn.

To illustrate how a business properly carried on will advertise itself, we give the following instance: Some time ago we received a request for an estimate on 30 untested queens. We quoted the price, and the estimate was immediately accepted and returned. They went out by next mail, to a point in northern Ontario, Canada. All went through alive. The parties were so much pleased that they clubbed together again and sent for more. Then again they clubbed together and sent for more. The secret of the success was in prompt mailing, and getting the queens through alive and in good order. We are frequently getting orders now to "send us another lot just like the one you sent us last. Be sure to send in Benton cages."

WE have just enjoyed a visit from a bee-keeper, Mr. J. E. Snider, and friend, of Salt Lake City. Among other interesting things he told us about that part of the country was, that Simplicity-hive covers, 16 inches wide, supposed to have been dry, have been known by him to shrink half an inch. That would make ⅜ in a foot. We here in the East have no idea of the dryness of some of these climates. Another thing, it is very difficult, on account of the scorching sun, to make white paint stick. Venetian red is about the only thing that will hold. He further added, that the dovetailed or lock joint on our hives is the only joint that can stand their climate. All other joints, by the action of the weather, will gap.

WE have received a good many photographs of apiaries, the senders giving us the privilege of using the same in GLEANINGS if we should see fit. Most of them are too poor and indistinct to be used for our half-tone work. To get really good landscape pictures, exposures should be made on a cloudy day. When the sun shines bright, the contrast between the shaded and brightly illumined parts of the picture is too great, the former being technically "under exposed," and the latter "over exposed," and in neither case is there good work produced. If the day is clear, have the photograph taken toward evening, when the light is not so glaring. We can use only a small per cent of the pictures sent; but what we do use, we should like to have perfect as to the amount of exposure. Show this editorial to your artist, and he will understand what we mean.

DO OLD BEES SECRETE WAX?

In another column it will be noticed that E. France has contributed an exceedingly valuable and interesting article on wax secretion. Most of us would be satisfied with the almost overwhelming proof that he brings to bear, that old bees can and do secrete wax and build comb when pressed to do so; but with his usual painstaking care and accuracy he is not yet entirely satisfied, but proposes to try the experiment again. We do not know that there is any practical bearing touching this subject, but there has been much discussion, and it is now time that we have a series of facts to prove which side is right. This will be a good experiment for the Michigan Agricultural College. Let them isolate a swarm newly hived, and take the brood away from them every 20 days, each time compelling them to build comb.

QUEENS TO AUSTRALIA.

Well, we have just heard from two of the queens that we sent to Australia. They were 36 days on the road. One cage arrived with all the bees alive, but the *queen* was dead. How provoking! Usually the tables are turned the other way. We often find boxes that have just arrived from Italy with the *bees* dead, but the *queen* alive! We feel sure that, if the queen had not been injured in some way, or weak from some cause or other, she would have gone through alive. The other cage had all the bees and queens dead; but examination showed that they had been dead only a day or two, and that because of the fact they had received a dash of water—possibly sea-water—at an unlucky moment, and this was too much for the candy. We can hardly regard either of these as failures; and the only reason why they were not a perfect success in both cases was due to rather unusual accidents.

THE TOBACCO COLUMN.

Some of our readers may wonder why no testimonies from those who have given up tobacco have appeared since the 15th of July. The reports on pages 747 and '8 will partially explain. But you will need to keep in mind that all these reports should have been published in July; and my footnote at the end of the testimonies was written with the supposition that it would appear in the July 1st issue. While I was sick it was crowded out for more important matter—that is, if there is any more important matter before the American people just now. It does not quite seem to me that there is. Now, please do not think, from the long silence on this subject, that the work has not been going on, for we have another string of testimonies for our next issue. This explanation seemed to be due our readers because of my comments at the closing-up on page 748.

A. I. R.

LUTHER W. GRAY.

In response to my request in our issue for Sept. 15, page 695, a part of those who sent Mr. Gray money have replied, stating how much. Several others have made no response. As it is quite unlikely that Mr. Gray will be able to return the money very soon, we have decided to make good all that our readers have lost by sending money to him, under the following conditions: The one who sent money in answer to Mr. Gray's advertisement must, of course, have been a subscriber to Gleanings at the time. If he borrowed the paper of a neighbor, and saw Gray's advertisement, and then sent him money, I hardly feel that we should pay it, for we decide to protect only our *subscribers*. Second, we ask the privilege of paying the amount in bees or queens instead of cash. But we can not furnish them at the prices Mr. Gray advertised, for he quoted very low figures, with the understanding, I presume, that he was in *Florida*, where it is summer the year round, and so he could afford to raise queens at a low price. If, however, you prefer to take the amount out in Gleanings or A B C books, we will extend your subscription or mail the books, and thus have the matter ended. We shall charge the amount to Mr. Gray, and hope he may some time be able to pay it back to us. Our bookkeeper will mail a memorandum of credit to the different parties.

A. I. R.

THE APIARY AT THE HOME OF THE HONEY-BEES CRITICISED.

During the last three or four days we have had quite a number of visitors here at the Home of the Honey-bees. On going into the apiary they were a little disappointed on seeing that grass had grown some six or seven inches high, and that some of the entrances were somewhat obstructed with grass and weeds. They had read the A B C book, and expected to see nice white sand for dooryards to the hives, and the grass all neatly kept down with a lawn-mower. Perhaps we should explain a little. One of our apiarists left us a month or six weeks ago, leaving only one man to manage the yards with the assistance we were able to render ourselves whenever we could get time from the office. The consequence was, we were obliged to do no more work than was absolutely necessary. The principal thing we aimed to do was to keep the internal condition of the hives in good working trim for queen-rearing. Many of the hives had nuclei. We have found that, while grass and weeds in front of the entrances disconcert robbers to a very great extent, they do not very much trouble the rightful inmates of the hive. While it looks untidy in the fall of the year, there is certainly an advantage in this untidiness. After all, brother bee-keepers, how many of *you* have a model apiary with respect to closely mown grass and neatly arranged dooryards to *every* hive? We have some 300 or 400 colonies or nuclei in the home yard now; and one man has, practically, managed the whole, and he does it largely on the plan we outlined in an editorial on page 749, last issue; that is, diagnosing colonies, and handling hives more and frames less. In our visit to noted apiarists of the country, we rarely found one who kept every thing neat and in apple-pie order, although in many cases our visit had been anticipated, and things were probably in better shape than they would have been if it had not been known that a bee-editor with a criticising eye was soon to be among them. When our colonies are running for honey, and it is the height of the honey season, we keep entrances clear; but during the fall, for the reason above stated, we let the *weaker* ones have their entrances a little bit obstructed with grass.

A. I. ROOT AFTER HE GOT WELL.

At this date, Sept. 30, I am happy to tell you, dear friends, that I am enjoying as good if not better health than I have before at any period of my life, so far as I can remember. Of course, I tire out quickly, and am obliged to make short trips and to rest often; but I am feeling a vigor, energy, and enthusiasm that is filling my heart with thankfulness. I can eat any thing that anybody else does, and have never enjoyed fruits and vegetables more in my life than I do now. I do not need any overcoats nor fur caps, and can stand as much draft as people ordinarily. Music, reading, companionship of friends, and all these wonderful gifts that God has provided for us, come to me with a wonderful new relish; and yet I have been under the care of a doctor who gives medicine I thought at the time without stint. I have also been quite a patron of my neighbor who keeps a drugstore; and yet I have come through all of this "doctoring" and all of these "drugs" like a new man. In dropping the different kinds of medicine that have seemed at the time indispensable, I have experienced no trouble. I feel like saying this, because I fear that many of us have not sufficient respect and confidence in the great organized band of workers for the relief of human suffering. Yes, I feel a new respect and love, not only for the druggists of our land, but for their carefully drilled and intelligent clerks who put up prescriptions.

With the new strength and energy comes back responsibility. A few days ago the responsibility was mercifully lifted from my shoulders. Now I must take it back; and with the responsibility come back old temptations and trials; and a good many times I have been obliged to bow my head in sorrow and shame to feel that, even with the new lease of life, I am but *A. I. Root* still, with the old faults and old infirmities. Dear brothers and sisters, may I ask you to pray for me, and to pray especially that I may have wisdom and judgment given me from on high, in the matter of these Home talks and Neighborly talks which I hope to continue to give you? May I be kept from mistakes, from selfishness, from errors in judgment; and may I be enabled to teach that wondrous love that "thinketh no evil."

CONVENTION NOTICES.

The fifth semi-annual convention of the Missouri State Bee keepers' Association will be held at Sedalia, Mo., Wednesday and Thursday, Oct. 7 and 8. Rates for all those attending are promised at the Sicker and Kaiser Hotels at $1.50 per day each.

J. W. ROUSE, Sec'y, Mexico, Mo.

The Executive Committee have fixed the date of the next session of the North American Bee-keepers' Association, Dec. 8 to 11, at Albany. There will be an informal meeting on the evening of Tuesday, Dec. 8th, for getting acquainted, etc. The real work of the convention will commence Wednesday morning, and extend through two full days ending Friday morning, giving distant delegates time to get home before Sunday. We want all to get there if possible on Tuesday. If they have a few hours of daylight it will give an opportunity to look around the city, view the capitol building, etc. Reduced rates have already been secured in all trunk-line territory, and the same is expected over other railroads. The program is now under way, and other arrangements are nearly completed. If you have decided to take a vacation that will, we trust, be profitable, don't fail to attend this convention.

P. H. ELWOOD, Pres., Starkville, N. Y.
C. P. DADANT, Sec., Hamilton, Ill.

FRIEND ROOT:—The S. C. B. K. A. meets in this city the 21st of October, and we are making a determined effort to convert it into a State association; and to this end we are sending out the inclosed address to the bee-keepers of California. To aid us in this will you be kind enough to find space for this in your next issue? Also give date of the convention in your regular convention notices.

We expect a very large attendance. "The Rambler" has promised to be present, and a great many of the noted California bee-keepers; and I wish we could add your name to our list. We trust you are rapidly recovering from your illness; and if you desire to recuperate, come to California and remain over winter.

GEO. W. BRODBECK.

Los Angeles, Cal., Sept. 19.

TO THE BEE-KEEPERS OF CALIFORNIA.

The Southern California Bee-keepers' Association will hold their second annual session at Los Angeles, in the W. C. T. U. Hall, on Wednesday, Oct. 21st, at 9 A. M. This association has been in existence one year, and has met with such marked success that at present its membership outnumbers some of the Eastern State associations that have been organized for years. The object in forming this association was for "mutual benefit and protection," and with this aim in view we desire to enlist every one in the State of California "who owns and handles bees."

The success of this association proves beyond question that the bee-keepers of the State begin to realize the necessity of building up and fostering the honey industry of California.

During the past few years this interest has seemingly been dormant; and as a result, while other industries have prospered, and by banding together have secured the law's protection by proper legislation, we, as a class, have secured nothing. California is the largest honey-producing State in the Union, consequently ought to rank first in every thing that tends to aid and build it up. Every industry in the State is making a determined effort to secure proper recognition at the World's Fair, and to accomplish this are doing their utmost to secure their portion of the State's and counties' appropriations, and it is high time we were doing likewise.

California's apicultural display at the World's Fair in 1893 will depend entirely upon the concerted action of the bee-keepers of the whole State, and this will never prove a success unless we are represented by a State association. There is a proposition now before this present association to convert it into a State association; so if you possess any pride in the bee keepers' industry, or consider your own interests, the necessity of a strong and permanent organization can not be questioned. We suggest to every county and local bee-keepers' association in the State to send at least one individual to represent their interests at this October meeting. We extend a most hearty invitation to every bee-keeper in the State, both male and female, and have made provisions for the largest assemblage ever held on this coast.

There will be "Ramblers" from all sections; invite your friends to join you; and, if possible, inform us of those who will be present.

GEO. W. BRODBECK, Sec'y.
No. 223 South Spring St., Los Angeles, Cal.

THE UNITED STATES HONEY - PRODUCERS' EXCHANGE.

REPORT UP TO SEPT. 15.

The following are the questions that were sent out, and correspond by number to the tabulated replies below:

1. *In your locality, how many more colonies will go into winter quarters than a year ago?*

2. *What per cent of an average crop of fall honey has been secured in your locality?*

3. *How does the yield for the season compare with last year?*

4. *Quality of honey as compared with last year's crop?*

STATE.	Qu. 1.	Qu. 2.	Question 3.	Qu. 4.
Alabama......	About same.	80%	50% better.	Better.
Arizona.......	10% more.	10%	Not as good.	Better.
Arkansas.......				
California.....	About same.	15%	⅛ as much.	Poorer.
Connecticut..	10% more.	20%	About same.	Poorer.
Colorado	40% more.	15%	Little less.	Poorer.
Florida	20% more.		Much better.	Better.
Georgia........	About same.	40%	50% better.	Better.
Iowa..	10% more.	10%	10% better.	Same.
Indiana	15% more.	5%	About same.	Poorer.
Indian Terr'y..				
Illinois	10% more.	10%	About same.	Poorer.
Kansas... ...	20% more.	50%	Better.	Same.
Kentucky. ..	30% more.	20%	Not as good.	Poorer.
Louisiana	50% more.	15%	Much better.	Same.
Maine..........	25% less.	20%	About same.	Better.
Massachusetts.	20% less.	5%	Some better.	Same.
Maryland	25% more.	20%	25% better.	Poorer.
Michigan	5% more.	15%	About same.	Same.
Minnesota...	20% more.	25%	25% better.	Same.
Mississippi				
Missouri	10% more.	15%	About same.	Poorer.
Nebraska......	12% more.	75%	50% better.	Better.
Nevada	10% more.	60%	Not as good.	Poorer.
New Hampsh'e	15% less.	10%	Much better.	Same.
New Jersey....	20% more.	100%	Much better.	Same.
New York	12% more.	65%	50% better.	Better.
North Car'lina	5% more.		About same.	Same.
Ohio	10% more.		Some better.	Poorer.
Pennsylvania	5% more.	50%	Better.	Better.
Rhode Island .	Same.	10%	25% less.	Poorer.
South Car'lina	20% more.	10%	50% better.	Better.
Tennessee......	25% more.	50%	100% better.	Much better.
Texas...........	20% more.		Some better.	Same.
Vermont.......	30% more.	20%	75% better.	Much better.
Virginia........	15% more.	5%	About same.	Not as good.
West Virginia.	10% more.		Little better.	Not as good.
Washington...	15% more.		Much better.	Same.
Wisconsin......	10% more.	15%	50% better.	Better.

P. H. ELWOOD, PRES.
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A. I. ROOT, Medina, O.

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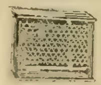

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Postage in each case, 42, 46, and 24 cents extra. The books can not be sold separately, or extra copies for less than $4.00 in each case, and postage extra. If you are not acquainted with the *Cosmopolitan*, address them at Madison Square, New York, for a free sample copy; but address all orders for books and subscriptions to

A. I. ROOT, Medina, O.

P. S.—To new subscribers to GLEANINGS we will send from time subscription is received till Jan., 1893.

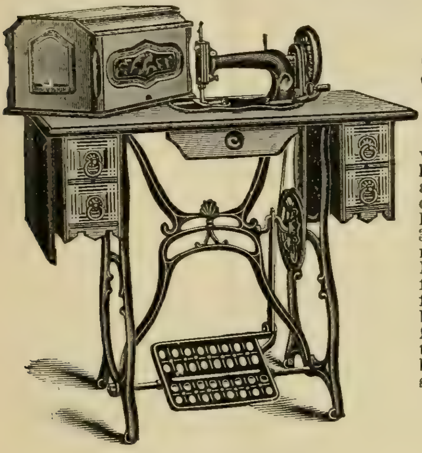
ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. **W. Z. HUTCHINSON, Flint, Michigan.**

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
—Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS**, Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS. 6-4d



THE NEW FAMILY

SINGER SEWING-MACHINE.

Made from latest models; first class in every respect, and warranted for 5 years. A boon to many an overworked housewife who can not afford to pay the price usually asked by agents. Cut shows No.4 . No. 1 is the same without the cover, leaf, and two drawers. Price $11.00. No. 2 has a cover, but no leaf or side drawers. Price $12.50. No. 3, as shown in the cut, without the 2 side drawers at the right. Price $14.00. No. 4, shown in the cut, price $15.00. No. 5 has 3 drawers on each side. Price $16.00. We can furnish a high-arm Singer, in any of these Nos., if preferred, at $2.50 extra. Wood parts are oil polished, walnut; balance-wheel is nickel plated, and each machine includes a full set of attachments, with instructions for use. We ship them direct to customers from factory in Chicago. We have a catalogue giving cut of each machine and full description which we shall be pleased to mail on application.

A. I. ROOT, Medina, Ohio.

MUTH'S

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-Hives
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

MUSICAL INSTRUMENTS
MURRAY & HEIS
CLEVELAND OHIO.
SEND FOR CATALOGUE.
1-tfdb
Please mention this paper

FOR SALE OR EXCHANGE.—Michael's Early Strawberry Plants, $4.00 per 1000. Will take fruit-trees in exchange.
J. S. WARNER, Medina, Ohio.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.
PAGE & KEITH,
14tfdb New London, Wis.
In writing advertisers please mention this paper.

BEE - HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.
LEAHY M'F'G CO.,
14tfdb *HIGGINSVILLE, MO.*
Please mention this paper.

Punics. Apis Niger. Punics.

The most wonderful race of bees on earth. Full description of these bees with prices of queens, full colonies and nuclei, in the August (1891) American APICULTURIST. Sample copies free. Address
15tfdb **HENRY ALLEY, Wenham, Mass.**
Please mention this paper.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.
FOUNDATION is Our Own Make.
F. A. SALISBURY.
In writing to advertisers please mention this paper. 4tfdb

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
☞In responding to this advertisement mention GLEANINGS.

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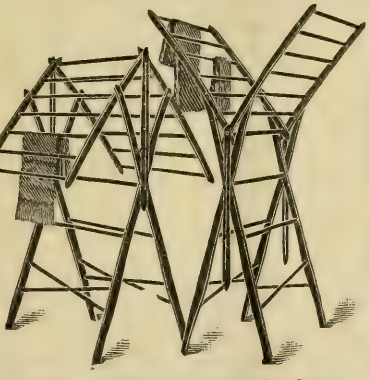
CONVENTION NOTICES.

The Executive Committee have fixed the date of the next session of the North American Bee-keepers' Association, Dec. 8 to 11, at Albany. There will be an informal meeting on the evening of Tuesday, Dec. 8th, for getting acquainted, etc. The real work of the convention will commence Wednesday morning, and extend through two full days ending Friday morning, giving distant delegates time to get home before Sunday. We want all to get there if possible on Tuesday. If they have a few hours of daylight it will give an opportunity to look around the city, view the capitol building, etc. Reduced rates have already been secured in all trunk-line territory, and the same is expected over other railroads. The program is now under way, and other arrangements are nearly completed. If you have decided to take a vacation that will, we trust, be profitable, don't fail to attend this convention.

P. H. Elwood, Pres., Starkville, N. Y.
C. P. Dadant, Sec., Hamilton, Ill.



"OUR DOMESTIC" CLOTHES-DRYER.

EVERY FAMILY NEEDS ONE.

Here is your chance for a winter's job. Buy them in the flat. Learn to set them up, and control the sale of them in your locality. For particulars address ***D. S. Hall, S. Cabot, Vt.***

Please mention this paper.

100 I can furnish about 100 young laying Italian queens by return mail at $1.00 each; six for $5.00. My queens, many of them, are yellow to the tip. Over 1000 queens sold in past two seasons, and not a displeased customer, and but two queens reported impurely mated. 20tfdb

W. H. LAWS, LAVACA, SEB. CO., ARK.

MUST BE SOLD.—I have a lot of new and second-hand bee-supplies for sale at 50 per cent below cost. Full list and prices on application. They consist of Simp. bodies, covers, Simp. section cases, Sections made up and flat, Honey-Extractor, No. 5, Division-Boards, Drone-Traps, Parker's Fasteners, and numerous other things, about $45.00 worth in all; $25.00 cash buys them. Honey taken in exchange.

19-24db ***G. WIEDERHOLD, YONKERS, N. Y.***

KIND WORDS FROM OUR CUSTOMERS.

That cover (Gleanings, Aug. 1) takes the cream. Huntington, Fla., Aug. 9. A. F. Brown.

Your columns are a good medium to reach the public with salable goods in their season.
Dennison, O., Sept. 11. Hill Mfg. Co.

The goods ordered of you by express a few days ago came to hand yesterday in nice shape. It is a pleasure to deal with a man who is so prompt and careful about his shipments. I will send you an order soon for my next year's supplies, in order to have them ready when needed. Z. Wells.
Fort Smith, Ark., Sept. 16.

The goods came all right, and we join with the many who are praising the qualities of the improved smokers. We could not sleep until we had perused the A B C, and read most of the pictures at least. Now when we read Gleanings we can turn to the friendly faces of the writers, and soon feel we are acquainted with them. S. Cornish.
Springfield, Mo., July 3.

THE NEW IMPROVED CLARK SMOKER.

I have tried one of the new improved Clark smokers, and it is O. K. now. The grate is a big improvement. If there were the same number of holes in the slide-door it would burn more evenly. My preference has been decidedly in favor of the Bingham; but the improvement on the Clark makes it every way as good, and just look at the difference in price! F. A. Salisbury.
Syracuse, N. Y., July 13.

THE A B C AND COOK'S MANUAL.

The A B C of Bee Culture has been on hand for a few days, and I like the newly written and revised articles very much. I find it my most convenient book for quick reference. This book and Prof. Cook's is all a beginner needs in the way of books; then a good journal, and he is equipped as far as theory goes. C. L. Buckmaster.
Columbia, Mo., Aug. 1.

THE WAY WE PUT UP NUCLEI.

We received the bees in first-rate order, and were well pleased with the change you made for us. We saw the queen the evening we hived them. I have received nuclei of three frames from others, but we were better pleased with the one you sent us than any other so far; and as for packing, it was just grand. Thanks for your promptness in filling my order. R. Swift.
Blasdell, N. Y., Sept. 18.

Kindly send me ten water-cure pamphlets. This simple cure has done more for my wife than all of the doctoring for the past eight years. A short time ago we became fearful lest the constant washing would injure or remove the lining or coating, and the use was partly abandoned for the time. Then my wife said she did not feel as well, and would have to start the use of it again, when she experienced the same relief as before. We have told a great many, but I should like the pamphlets to send away where it is more difficult to send particulars or have my journal returned. This to me has been worth many times the price of Gleanings.
London, Ont., July 30. F. J. Miller.

From two nuclei bought of you in August, 1890, I now have eleven good eight-frame colonies, and expect to have three or four more swarms in the next few days. I am also getting a good crop of honey. My crop of Japanese buckwheat is in full bloom, and bids fair to give a handsome yield of both honey and grain.

By the way, friend Root, my select tested Italian queen that I purchased of you last August led out a swarm yesterday, and settled in the top of a mulberry-tree. I was at work at the *Call* office, over a mile away, and my wife could not get them down. She sent after me, and I reached home just in time to see my beautiful queen and her babies leave for the woods; $25.00 would not have tempted me to part with her. Z. Wells.
Fort Smith, Ark., Aug. 20.

HONEY COLUMN.

CITY MARKETS.

NEW YORK. *Honey.*—Owing to the still-continued warm weather, the honey market is almost on a standstill. Those having bought still hold it, very little selling. If we do not have colder weather soon, honey will drop in price. There is no change in honey and beeswax since last issue.

CHAS. ISRAEL & BROS.,
Oct. 9. New York.

CHICAGO.—*Honey.*—The honey market is more active, and sales are more readily made. We now obtain 16c for best grades of white comb in pound frames. The supply is light. This is also one of the best months to sell honey in our market. Very little demand for dark grades. Extracted sells at 6c for dark, and 7@8c for white. The inquiry is also active.

R. A. BURNETT,
Oct. 8. Chicago, Ill.

CINCINNATI.—*Honey.*—There is a fair demand only for honey for table use. Warm weather and an abundance of fruit may be the cause of it. There is a fair demand only from manufacturers. Supply is plentiful of all but choice comb honey, which brings 14@16c in a jobbing way. Extracted brings 5@8c on arrival. Demand for beeswax is fair, arrivals are good, and it brings 23 to 25 cts. for good to choice yellow on arrival.

C. F. MUTH & SON,
Oct. 8. Cincinnati, O.

MILWAUKEE.—*Honey.*—This market presents no new features to note, although the supply of comb honey has increased, and the supply now is good, and better quality than usual. The demand is not very brisk, but values continue, for choice 1-lb. sections in good cases, 15@16; good, 14@15; fair, 13@14; dark, 10@12. Extracted, in barrels and kegs, 7@7½ for white; 6@6½ for dark. *Beeswax*, 25@28.

A. V. BISHOP,
Oct. 9. Milwaukee, Wis.

NEW YORK.—*Honey.*—The demand for honey has been rather limited, owing to the unusually warm weather and the abundance of fruit. Supplies are sufficient for the demand. We quote: Fancy white, 1-lbs., 14@15; 2-lbs., 12@13. Off grades, 1-lbs., 12@13; 2-lbs., 11@12. Buckwheat, 1-lbs., 10@11; 2-lbs., 9. Extracted, basswood, white clover, and California, 6¾@7; orange bloom, 7@7½; Southern, 60@70c per gallon, according to quality. *Beeswax* steady at 25@27.

HILDRETH BROS. & SEGELKEN,
Oct. 9. New York.

ST. LOUIS.—*Honey.*—Southern strained, in bbls., 5c for dark to 5½c for choice; in cans, 7@8c. Comb, white clover, 13@14c; dark, 10@11c; broken, 5@7c. *Beeswax*, dull at 24c for prime. Comb honey, choice stock, in good demand and scarce.

W. B. WESTCOTT & CO.,
Oct. 5. St. Louis, Mo.

ALBANY.—*Honey.*—Honey demand improved since weather cooled, and is selling as follows: White comb, 14@17; mixed, 13@15; buckwheat, 10@12. White extracted, 7@7½; dark, 6@6½. *Beeswax*, 28@30.

H. R. WRIGHT,
Oct. 11. Albany, N. Y.

KANSAS CITY.—*Honey.*—Honey demand fair, supply light. With cooler weather demand will be better. We quote 1-lb. white comb, 15@16; dark, 10@12. Extracted white, 7@7½; dark, 5@6. *Beeswax*, 23@26; none in market.

CLEMONS, MASON & CO.,
Oct. 9. Kansas City, Mo.

DETROIT.—*Honey*—Best comb honey is selling at 12@13; supply light. Extracted, 7@8. *Beeswax*, 25@26, dull.

M. H. HUNT,
Oct. 8. Bell Branch, Mich.

CLEVELAND.—*Honey.*—White comb honey in fair demand at 16@17c in 1-lb. sections. *Beeswax* scarce, and wanted at 25@28c.

A. C. KENDEL.
Oct. 8. Cleveland, O.

ST. LOUIS.—*Honey.*—No change since our last. Demand remains quiet. *Beeswax*, 24c for prime.

D. G. TUTT GRO. CO.,
Oct. 9. St. Louis, Mo.

BOSTON.—*Honey.*—We quote you our market on fancy 1-lb. comb honey, 15@16. Extracted, 7@8. No beeswax on hand.

BLAKE & RIPLEY,
Oct. 9. Boston, Mass.

FOR SALE.—100 lbs. of buckwheat comb honey.
20d D. F. LASHIER, Hooper, Broome Co., N. Y.

WANTED.—500 lbs. extracted white-clover honey.
EDGAR BRIGGS, care of W. Irish,
20d Poughkeepsie, Dutchess Co., N. Y.

FOR SALE.—800 lbs. honey in 1-lb. boxes, packed in 24-lb. single-tier cases; about 80 lbs. mixed, the rest No. 1 white clover. Would be pleased to hear from any one wanting honey, stating price they will pay delivered at R. R. Must be sold. References given.

WM. VAN AUKEN,
2 d Woodville, Jeff. Co., N. Y.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address
11tfdb E. LOVETT, San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE.—6 tons alfalfa and sweet-clover honey in 60-lb. cans, 5c by the ton. *Must sell.* 19tfdb
A. B. THOMAS, Payson, Utah Co., Utah.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To exchange a 5x8 photograph camera with tripod and six plate holders—first-class in every particular, for apiarian supplies.
C. F. HOPWOOD, Caldwell, Essex Co., N. J.

WANTED.—To exchange a Franz & Pope knitting-machine in first-class order, nearly new, for honey, or dovetailed hives in the flat.
MRS. C. A. STEBBINS, Churchland, Norfolk Co., Va.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of twelve years' careful breeding. Reduced prices: Warranted queens, 80 cents each; 3 for $2.00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 11 years, 505 queens. Circulars free. 13-14d

J. P. MOORE, Morgan, Pendleton Co., Ky.
Money-order office, Falmouth, Ky.
Please mention this paper. 7d

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2¼x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

LADIES' FINE SHOES.

PRICE ONLY $2.

Genuine Kid, Soft Soles, Elegant Style; Broad or Narrow Toe. Sizes, 2 to 8. C, D, E, and E E widths. This Shoe is sold at $3 in all retail stores.

Our Price $2, Postpaid.

Fit, Style, and Wear Guaranteed.

NO SHODDY, BUT GOOD SHOES.

Send P. O. order, Registered Letter or Postal Note.

C. L. Griesinger, Medina, Ohio.

Reference, Gleanings. 18-19-20-21d

In writing advertisers please mention this paper

Golden · Italian · Queens

BY RETURN MAIL.

The Golden Italians are considered to be the handsomest and gentlest bees in the country. As workers, they are second to none. My breeding queen and bees took FIRST PREMIUM last fall at the Detroit Exposition. I can now furnish untested queens promptly, for 75c each, or 3 for $2.00. Tested queens $2.00 each. Select tested, $3.00 each. Make money orders payable at Flint, Mich.

N. B.—One of my queens, together with her bees, has again taken FIRST PREMIUM at the Detroit Exposition. 19tfdb

ELMER HUTCHINSON,
ROGERSVILLE, GENESEE CO., MICH.

Please mention this paper.

EARLY QUEENS.

In March and April, from apiary in Texas, the choicest 5-banded stock, warranted purely mated. One, $1.25; 6 for $6.00.

BREEDING QUEENS.

From home apiary in April or May, $3.00 to $5.00 each. All orders filled promptly. Send your name NOW for full particulars, ready in February or fore part of March. Safe arrival and *entire satisfaction guaranteed* or money refunded. Orders booked now, pay when you want the queens. 1-24db

S. F. & I. Trego, Swedona, Ill.

Please mention this paper. 1tfdb

YOUNG TESTED ITALIAN QUEENS FOR $1.25 EACH.

Do Not Let a Colony go through the Winter Queenless. Get a Queen.

19-20d **JOS. NEBEL & SON, High Hill, Mo.**

Please mention this paper.

$5 · FIVE DOLLARS · $5

or less, invested in **BULBS** this fall, will give you weeks of pleasure next spring. Try it. Roses, and Carnations for winter blooming. A specialty of Hyacinths, Tulips, Crocus, Narcissus, Lilies, etc.

Price List Free. THEODORE JENNINGS,
19-20d Port Chester, N. Y.

Please mention this paper.

PRINT YOUR OWN CARDS

PRESS $3.00
Circular Size $8.00
Press for a small newspaper $44.

SAVE MONEY! Make money printing for others! Type setting easy; printed instructions. Send 2 stamps for Catalog of **Presses, Type, Cards, Paper,** &c., to the Factory.

KELSEY & CO.,
Meriden, Connecticut

Please mention Gleanings. 19-20-21

BERRY PLANTS, Grape Vines, Fruit Trees, Small fruit plants. Large stock. Low prices. Catalogue free. **WM. STAHL, Quincy, Ill.**

For Sale, Portable Engine on Wheels

8 H. P., in good repair. Will sell AT A BARGAIN if taken at once. Address

Lowry Johnson, Masontown, Pa.

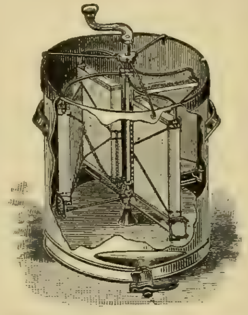
N. A. KNAPP, Rochester, Lorain Co., O.,

HAS FOR SALE

50 Strong Colonies of Pure Italian Bees,
500 White and Black Ferrets.

Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

Please mention this paper.



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

Bee-Keepers' ✽ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM. McCUNE & CO.,
21-20db **Sterling, Illinois.**

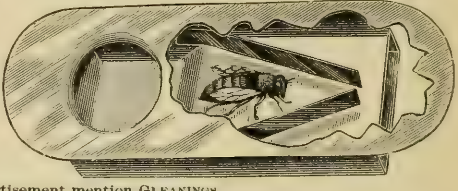
☞In responding to this advertisement mention Gleanings.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



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A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing of practical construction** needed in the apiary, and at **Lowest Prices**. Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞In responding to this advertisement mention Gleanings.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
$1.00 PER YEAR
MEDINA OHIO

Vol. XIX. OCTOBER 15, 1891. No. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

SHAKE HANDS with me at Albany.

J. F. MCINTYRE can go to the head with that nucleus record on page 761.

SUNDAY seems to be the favorite day for bee-conventions among the Germans.

GOOD HONEY should be a little more than a third heavier than water.

APPLES are very plentiful in my neighborhood this year. Bad for bees. Cider-mills.

COVER A BURN with what the grocerymen call waxed paper, such as they cover over butter.

FOR SCRAPING SECTIONS I formerly believed a dull knife was best. I have come to believe a sharp one is better.

SIXTEEN THOUSAND, or at the most twenty thousand, is the limit of the number of bees in a swarm, according to Cheshire.

WINTER CASES, costing 2 cents per hive, are made by A. N. Draper (*A. B. K.*), of lath, tarred twine, and forest-leaves.

A REMEDY FOR STINGS, given in *Leipziger Bienenzeitung*, is to cut an onion in two and apply the cut surface to the part stung.

CHARLES DADANT, in *Revue Internationale*, says that the United States stand at the head in apiculture among all nations, because of the study of bee-books.

THIS COUNTRY stands at the foot in the matter of bee-keepers' societies. We might learn something from other nations which leave us clear out of sight in numbers.

MY PUNIC QUEENS were taken to the Wilson apiary. When I told Mary Wilson I had brought two Punic queens, she very innocently asked, "Why do you bring *puny* queens here?"

"PIPING," Cheshire says, "is certainly not produced by the wings, since queens clipped so vigorously that not a vestige of wing remains can be as noisy as others."

BEES FLY 60 to 100 miles an hour under favorable circumstances, D. A. Jones thinks. M. Teynac, when using bees as carriers, found a loaded bee to make 3 miles in 15 or 20 minutes.

A MELILOT STALK, that I found growing in a clay bank on the roadside, measured 10 feet 4 inches in height. I can easily believe that a few years' growth of such plants in clay land would make it quite fertile.

RECORD-BOOKS have one advantage that is not to be despised. They are safe against the meddling of other people, animals, or winds. One year I had manilla tags on all my hives. Some person or thing, I never knew what, tore off nearly every one. If my only records had been on them it would have left me in bad shape.

TO FASTEN COMBS in frames when transferring, Doolittle says in *A. B. J.*, punch holes with an awl through top, bottom, and end bars, and then push wire nails through the holes into the comb. Leave the nails permanently if you like.

HONEY CANDY. Take one pint of sugar, with water enough to dissolve it, and four tablespoonfuls of honey. Boil until it becomes brittle on being dropped into cold water. Pour off into buttered pans to cool.—*Ladies' Home Journal.*

THE *British Bee Journal* still insists vehemently against using granulated sugar made from beets, in feeding. I suppose much of it is used on this side. Can't Prof. Cook demonstrate beyond a doubt either that it is or is not poisonous to the bees?

A PATHETIC LETTER comes to me from a man whose 128 colonies have been nearly ruined by the bees getting into the furnace of a neighboring evaporator. The result is much the same as if poison had been set out for them; but there is redress against the poison and none against the furnace. Ought there not to be?

WEIGHING COLONIES is more satisfactory than hefting them, or guessing at the weight by looking into the hives. With the proper apparatus two of us took less than a minute to a hive in weighing. Even when weighing, allowance must be made; for in some hives as much as ten pounds must be taken off for extra weight of old combs and bee-bread.

ROBBING BEES can be stopped, even when thoroughly under way, by wet straw or hay at entrance. Pile it a foot thick all about the entrance, and then pour on water till every thing is flooded. I've tried it a number of years, and this year saved a queenless colony thus, when robbers were at it wholesale. The robbers did not attack it afterward.

BEES AS DISPATCH-CARRIERS.—A Frenchman, M. Teynac, has been experimenting, and seriously considers the advisability of substituting bees for carrier pigeons in carrying messages. A tiny piece of paper is pasted on the back of the bee, with a cipher number on it, and, when the bee returns to its hive, it can enter only through round perforations which will not let its paper through, so the message is easily found.

SWARMING was considered a desirable thing 50 years ago. Every year the desire for non-swarming bees increases. If all who are anxious for non-swarmers would breed only from those colonies which swarm least, it seems reasonable to suppose that some one of the number, in the course of a few years, would strike a strain that would be valuable in this respect. Because many have failed is no reason that some one else may not succeed. It's worth much trying.

The Punic queen that I succeeded in getting to lay seemed to be doing a good business, but suddenly disappeared, I don't know why, and the bees have raised a successor from her brood. The curious part of it is, that, of the progeny of the Punic queen (she was fertilized in my apiary), not one in 500 shows any black blood. A careless observer might readily take them for pure Italians. I still think it was a big thing to get a virgin queen from England, and get her to laying.

QUESTIONS ANSWERED.

INTRODUCING QUEENS TO COLONIES THAT HAVE BEEN LONG QUEENLESS.

Some time in August I sent a queen to a party in Canada; and in writing to me, telling of his losing her in trying to introduce her, he incidentally mentioned that he introduced her to a colony that had been queenless for three or four weeks, and asked what I supposed was the trouble. I suppose the colony had a queen, or something it called a queen. I do not know whether or not he had given this colony unsealed brood at different times during this time that they were queenless; but from the tone of his letter I should judge that he had not. The object in answering this question in Gleanings is to particularly emphasize this thought: *Don't ever try to introduce a queen to a colony which has been long queenless, without first giving them unsealed brood, so as to know to a certainty that they are queenless.* According to the many letters of the past, in regard to loss of queens in introduction, I judge that more queens are lost by trying to introduce them to supposedly queenless colonies than from all other causes put together. "But," says one, "how shall I know to a certainty that a colony has or has not a queen, by simply putting in brood?" As far as I have had experience, a queenless colony will always start queen-cells on brood given them, unless they have laying workers, in which case they do not always consider themselves as queenless, and, as a rule, one might about as well try to get a queen into a colony which has a queen as to try to introduce one to a colony having laying workers. If a colony builds queen-cells you may know that it is queenless, and that, if the right amount of care is used, a fertile queen may be successfully introduced to it. But if any colony does not start queen-cells on brood given them, it may be known that it is a dangerous undertaking to try to introduce a queen to such a colony. Don't let us as a bee-fraternity be longer ignorant or heedless on this matter, for enough money and fine queens have already been sacrificed at the shrine of ignorance and carelessness.

SECTIONS PARALLEL WITH FRAMES.

Another writes, telling how he is about to make some new hives in which he desires to have the sections in the cases go crosswise of the brood-frames, and wishes me to tell in Gleanings whether I think the bees will do as well in them when worked in this way as they do where they go with the frames, as is the usual custom. As far as the bees are concerned or the amount of honey produced, it makes no difference which way the sections run to the brood-frames where the Langstroth bee-space is used, as I have repeatedly proven to my satisfaction. Where a continuous passageway is used, necessity compels us to place the sections parallel with the brood-frames. There is one important item in this matter, however, which makes it very desirable to have the sections run parallel with the frames, and that is the matter of having all hives pitch toward the entrance. This is almost a necessity to keep the water out of the hive, both as regards rain at all times, and the condensed moisture from the bees' breath during the winter and early spring months. If hives do not slant toward the entrance, injury is worked, not only to the bees, but to the hives; for a hive will not last nearly as long which stands level as will one that pitches enough to the front to run off all water. If such pitch is used and the sections go crosswise of the frames, the combs in the sections will be run from one section into the bottom of the next one, for bees always build their combs perpendicular; or if the frames run crosswise to the entrance, and the hive is pitched toward the entrance, as it always should be, then the combs will not be built true in the frames. Having hives pitch toward the entrance also helps the bees much in cleaning the bottoms of their hives and keeping them clean; also in defending themselves from robbers and other insects. For these reasons I should prefer to have the sections run parallel with the frames, if such a thing were possible.

PARTLY FILLED SECTIONS.

Still another writes, saying: "I am about having my partly filled sections fixed up by the bees preparatory to next season's operations. This I do by uncapping the sealed part of the honey and placing them over colonies which need feeding. After the bees have removed the honey, during my leisure hours this fall and winter I wish to put them in my cases so as to have all in readiness for another harvest when it comes, so as to have no fussing with these in my hurry next summer. Should the supers be entirely filled with these sections, or partly filled with new? If the latter, what part of the super is the best location for the sections containing the comb?"

My way of doing this would be to divide the number of sections by the number of colonies which I expected to have next year to produce comb honey, and place the quotient in each case, placing the partly filled ones in the center and the other on each side. Used in this way as "bait" sections, these partly filled sections are of great value, and will bring you a greater interest than money in the bank; while if all were put on top of a few hives they would not be of nearly so much value. If you have more partly filled sections than enough to make one tier through the center of each section-case, then I should place in the middle tier as before, then a tier on each side of this of the new sections, then more of the partly filled sections, and so on, alternating till the section-case is filled. In this way the bees will be at work throughout the whole case, almost before you know it.

G. M. Doolittle.

Borodino, N. Y., Oct. 5.

[I indorse emphatically what you say in regard to introducing to queenless colonies; and I wish that every A B C scholar might read over those italics two or three times. The meanest colony, according to our experience, to introduce a queen to is one that has been queenless long enough so that there is a possibility or a probability of a virgin queen being in the hive somewhere. They will invariably kill the introduced queen, no matter how valuable she may be, and take instead any little old black virgin that may happen to be lurking in the hive. In the directions we have been sending out for introducing queens for the past year or so, we have been entering a caution against introducing to such stocks. We get the best results from a colony that has been queenless long enough to show initial cells.] E. R.

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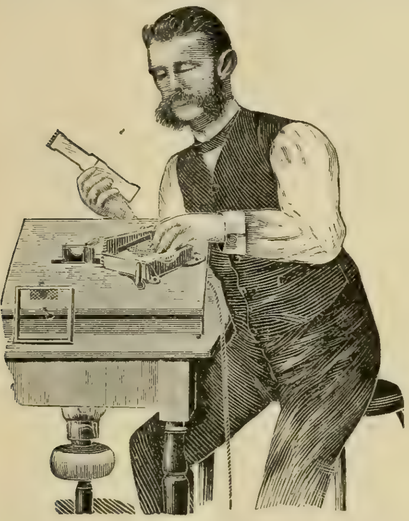
A NEW DEVICE.

A SECTION-FOLDER AND FOUNDATION-FASTENER COMBINED.

Friend Root:—Having expressed you one of my combined self-folding section-press and foundation-fastener (patent applied for in U. S. and Canada), with your permission I will endeavor to describe its construction, working, and advantages over other devices.



As will be seen by cut, it is small, neat, and light, being only 14x16 in., with a three-inch rim, and weighs about 8 lbs. It is made of hard wood and metal castings. The section is picked up in the right hand in the center, out of the flat; at the same time a piece of wax with the left hand. When the section is drawn back in the triangle back, stop, when it is half folded, and immediately drops down in position even with the table. A slight pressure now of the foot draws the two upright pins together, which folds the two ends; at the same time the heater, or wax plate, is raised up in position (being heated by a lamp), when the pressure is stayed long enough to touch the wax to the hot plate, when, on further pressure, it immediately drops out of the way, and the head-block closes the section and draws it up to the wax, which at once adheres. As soon as the foot pressure is relieved it returns to its original place ready for another section, being automatic, and takes longer to describe than perform.

Its advantages are quite apparent from description of its working. 1. It is small, neat, and convenient. It can be set on a solid table or workbench, with treadle attached to the floor, and can be worked sitting or standing.

2. Being foot-power, it leaves both hands at liberty to handle the section and wax at the same time, practically saving time.

3. Being *combined*, once handling of the section from the flat prepares it for the super, which is placed at your left to receive it. All know, who have prepared sections the old way, the time and labor saved here of handling the sections all over twice and even three times, besides doing the work of two machines by any other method, there being no changing or transferring required, but it can be used either as a folder or a fastener separately. As a folder it has no equal for expeditious work by detaching the wax-plate. Now that all sections are put on with starters it may seldom be required to use it separately.

4. It is automatic, being always ready for operation.

5. It folds the sections even and square, thus avoiding breaking.

Altogether it is a saver of wax, time, labor, and patience; in fact, it has to be seen working in order to appreciate all its advantages, and I think it could be named Eureka.

W. O. LEACH.

Coldwater, Ont., Can., July 21.

[We have tried the machine sent, but didn't succeed in making it work satisfactorily. When one feature will work, the other has a fashion of hitching or catching. As it is one of the first machines sent out by Mr. Leach, it is possible that it is not so strong nor well built as those he is manufacturing now. It will be a great time-saver if it can be made to do both operations at once.]

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WHO FIRST SENT QUEENS SUCCESSFULLY BY MAIL?

A LITTLE EARLY HISTORY OF THE SUBJECT.

Bee-keepers of the present scarcely appreciate the advantages derived from the knowledge that queen-bees can be sent from any point of the earth to any part thereof by mail. Not until July, 1863, had a queen with a few workers ever been caged and shipped per mail. From 1860 to '63 I was bothered about getting Italian queens by express. It occurred to me that queens might, perhaps, be transported by mail. I wrote to my ideal apiarist, Rev. L. L. Langstroth, suggesting the idea of sending queens by mail, and asked his opinion of the feasibility of mail transit of bees. He answered, saying that, in his opinion, he thought it not practical. I at once determined to test the matter. I took a small paper box, about the length and depth of the Benton cage, but wider, took a piece of sealed comb, very tough by age, and, with needle and thread, fastened the comb in one corner of the box, and with an eyelet-hole punch made holes in the box, by which air could circulate among the bees. Then I put a common queen and some 15 workers into the box; made it secure and addressed it to Mr. Langstroth; paid postage; and the postmaster, who is still my neighbor, duly marked the package, and, to honor me, dropped it into the pouch with the installment of mail matter. A few days later I received a letter from friend Langstroth, informing me of the safe arrival of the bees, and complimenting me highly for suggesting and putting in practice so worthy an enterprise. At the time he wrote he sent a fine Italian queen in a very small cage, addressed to me. The workers, five or six, were dead, and the queen died soon after I took her from the postoffice. Later he mailed another fine Italian addressed to me, and all came safely.

This is the history of the advent of sending queen-bees by mail, which has proved a great boon to the bee-keeping public. Mr. Langstroth was the first who shipped queens by mail. The authors of the "New Langstroth" were mistaken in according credit to other parties as being first to cage and mail queens to patrons. At the time of my sending the queen to friend Langstroth he wrote me that, in his contemplated new edition, he would give me due credit. Unfortunately, not only for bee-keepers but for the prosperity and good of mankind, the teacher was debarred by ill health from issuing another edition. In 1881 I wrote, calling Mr. Langstroth's attention to the circumstance of my sending him the queen by mail. I was prompted to do so from the fact that I thought certain other parties laid claim to the discovery. Mr. Langstroth answered my letter, and I inclose it, requesting the publishers of Gleanings to publish his answer, to the end that an authenticated record be published, and thus settle the question of priority. Mr. Benton received a prize for a particular form of shipping queen-cage, but I was first to devise a cage and a way of transit. C. J. Robinson.

Richford, N. Y., Sept. 22, 1891.

The following, in the familiar handwriting of Mr. Langstroth, is the letter referred to, and it speaks for itself:

Dear Sir:—I remember distinctly the circumstances to which you allude. As far as I know you were the first person to send a queen in this country by mail. I am not sure that queens had been previously sent anywhere by mail. If you could give me the year I could probably find all the facts recorded in my private journal. I think that the queen you sent came in July. I am now entirely laid aside by ill health from all active work, and have published no new edition of my work since the 3d, in 1859.

L. L. Langstroth.

Greenfield, O., Jan. 21, 1881.

[We are sure no injustice was intended by the publishers of the Revised Langstroth. We are pleased to get the information. Mr. Langstroth's letter above establishes the fact pretty clearly as to who sent the first queen by mail successfully. As Mr. L. would have given proper credit had he been able to revise his book, we are sure he would be glad to have it done now over his own signature.]

WANTED—A HIVE.

AN A B C SCHOLAR IS ALL IN A MAZE; BLIND LEADERS OF THE BLIND.

As you will perhaps recall from a former letter, I am one of your A B C scholars in the art and science of bee-keeping. I have got far enough on in the past two years to know that there is to me a lasting fascination in the pursuit. My plan from the start has been to work with a few colonies until I should become practically acquainted with the habits and requirements of my pets, to read books and journals until somewhat posted as to the methods and appliances used by leading men in the business; and then, when I had tested my own capabilities, and had found the best all-round hive for the production of comb honey, to enlarge my plant, and work for profit as well as for pleasure and information. So far I followed what I think was good advice. When I finished reading the A B C book, two years ago, I thought I had a well-defined plan, a good hive, and a good frame. To-day, on finishing the Sept. 15th No. of Gleanings, I have half a dozen or more of each, and am all at sea as to which will suit me best. Any one of them might do, if it were not that some other one is sure to have several better features. Root and Cook; Heddon and Doolittle; Miller and Tinker and Hutchinson:

How happy were I with either dear charmer,
Were t'other dear charmer away!

As it is, I *must* have the best; and how can I pick out the best of these varying methods, and so combine them as to keep bees with profit and pleasure? Is it always true, that in a multitude of counselors there is safety—never confusion?

The thought comes to me sometimes, that possibly things would work smoother if I quit my part in the game of "follow your leader." Perhaps with my little apiary with ten or twelve colonies I shall want to "handle frames instead of hives." In thinking it over I really believe I shall. I am sure I shall want to be acquainted with my frames, both sides of them. I feel certain that my bees will fare the better and work the harder; that there will be less waste, and consequently more profit, if the boss looks carefully into every apartment of their home. And possibly I do not need a hive that is a good one for a queen-breeder; that is, a non-swarmer out-apiary hive; an extractor, comb honey, winter, spring, summer, cellar, semi-tropical, snow-drift hive combined; but just a *hive*, with movable frames and a strong colony of bees in it. With Dr. Miller "I don't know." I confess I can't keep up with you. You ought to have taught me something in the past two years that would enable me to decide what I want now; but as you have not done so, I am going to give you the task of deciding for me; and it would tickle my fancy and perhaps the funny-bone of others as well, if you could get, say, Heddon, Doolittle, and Ernest Root to answer the same query. Here it is:

If you were going to start, and maintain at that size, an apiary of ten colonies, say in Central Pennsylvania, having no money invested in bees or hives or fixtures of any kind, and having in view mainly the production of comb honey, what kind of bees, hives, frames, supers, and sections would you buy, and why?

I need not tell you that, where there is one bee-keeper owning fifty colonies, there are twenty with from three to a dozen. Some of these are of the helter-skelter class, and it does not matter what hive or frame they use. Others are careful, practical, economical men and women who keep a few bees because they get congenial employment, good foods, and welcome cash for them. These, doubtless, comprise a large majority of your readers, and I want a hive and frame for them as well as for myself—something that we and the bees can hang to for a dozen years at least.

I like the conservative note of Doolittle's last article. There is sense and cash in it, as regards fixtures, and I am reluctantly approaching the conclusion that the fine manipulations and advanced ideas which bring about such exact results belong exclusively to experimenters and to an experimental stage; and that, to a vast majority of bee-keepers, they are practically but vanity and vexation of spirit. Isn't it enough to make a novice daft to read of the ease with which one can handle the Hoffman frame, and, in the same article, that there is no need to handle them, as the trained ear can detect queenlessness by the hum, and the hand estimate the amount of stores by hefting?

Now, I believe in progression in every industry. I know these experiments must be made, and our special pursuit go on to perfection by way of selection and the survival of the fittest. I am glad the editors and the owners of large apiaries, and the many intelligent men who have made almost a lifelong study of the bee, are pushing ahead. Much good must result; but by the time a system is perfected and agreed upon by the leaders, I, perhaps, will have gone over to the majority. So I wish you to take account of stock now, and pick me out a hive and frame which I can use for the next five years in my proposed home apiary of a dozen colonies, without dreading that some acknowledged leader in apiculture will hint of kindling-wood when it is mentioned in his presence.

I have read somewhere that almost every bee-keeper, at a certain stage in his experience, invents a hive of his own. Is it any wonder? for, sooner or later, he is sure to come to the conclusion that in this matter there is no such thing as an unprejudiced mind; or that, within certain limits, it makes no practical difference what the size or shape of hive or frame is. So, why should he not have his own?

As you will no doubt guess, I am drawing very near that stage when either a hive of my own get-up or a humiliating guess at what to buy will be a necessity. E. J. BAIRD.

Orlando, Fla., Sept. 28.

[I have read your article with much interest, and I do not much wonder that you are confused when the doctors seem to disagree; for who then shall decide? Surely not the beginners. As I have said all along, beginners should be careful about investing too much in new things. In all cases it would be wise for them to adopt the implements and devices that have given good satisfaction for many years. To what I refer is practically the L. hive and the L.frame. I would get this in a plain square-edged hive with no porticos, movable bottom, and a plain simple cover. It would be safe for a beginner to adopt a loose frame, and equally safe to adopt it with thick top-bars. While for my own use I should prefer something on the style of the Hoffman frame for the production of comb and extracted honey, I am quite certain that it would not please a good many others. In order to be progressive, advanced bee-keepers ought to discuss advanced methods; but beginners had better stick to established methods; and if they can afford to, let them try a *few* of the "new-fangled" devices. Of course, they would like to adopt that which, in the near future, would be accepted as the best; but at the present stage none of us can decide. I think we are safe in sticking to the eight-frame L. hive with loose bottom and without the portico; and if we wish to make any change, let it be in the matter of frames. But every one should be very careful which one he proposes to adopt. The advanced bee-keeper who has tried all kinds of frames can decide for himself which one he cares for, much better than any one else can decide for him. A beginner can not; and he had better (let me repeat it) stick to the established L. hive and a loose frame until his *advanced* brethren come to a little better agreement. The L. hive that I would recommend is essentially the Dovetailed. The same thing with both eight and ten frames has been made and advertised for many years by almost all supply-dealers; and it will be a long while before the general principles of this modified L. hive are changed—at least ten years. Now, I hope that my friends who think I am going too fast on fixed distances will carefully read over the above, for it explains just my position.] E. R. R.

CLOSED-END FRAMES.

JAMES HEDDON DECLARES AGAINST THE HOFFMAN FRAME.

I believe we all entertain a just pride in forming correct conclusions. I am very glad there have been bee-journals through which we may aid each other, not only, but on whose pages I might place my opinions, which I believe to be advanced opinions, on record. You know, Mr. Editor, that the man who really believes himself a true prophet, really capable of laying down such truths to-day as, although not accepted now, will surely be in the future, desires to make his prophecies public.

The above thoughts are suggested by the article of brother Stachelhausen, on page 592. You know very well that the mechanical construction and devices of apiarian fixtures and implements, especially of the hive, have been my hobby for twenty years; and probably from the great importance of having a good hive have flowed forth the bitter jealousies between inventors. I desire to make this article short, although devoted to a very long subject.

While for fifteen years a user and admirer of the laterally movable suspended L. frame, never a moment did I cease to study into and look after the merits of close-fitting frames. I have gone slowly and carefully, and made my experiments on a comprehensive scale; and I desire now to go on record for the following:

1. The Hoffman frame will never come into general use, and remain so. It is not as worthy as the L. frame. If I must use a Hoffman frame or a Langstroth frame, I will have the latter.

2. A closed-end frame in a close-fitting case is the only arrangement that will supersede the L. frame with practical honey-producers. As you say in your footnotes on page 592, such an arrangement works more perfectly in shallow cases like those used in my divisible brood-chamber; but, please place me on record, here and now, as affirming that this same arrangement in a case 10 inches deep makes a more worthy hive than the L. hive with the suspended frames; and don't fail to record me as saying that no other close-fitting style of frame does.

Some of your readers may say that some of the above are strong statements, and savor of conceit in the writer, to which I take no exception. I meant to make them strong; for, when I go upon record, I desire to go squarely so, and I think I know that every statement above is true; and have I not a right to some conceit? I think that, as long as ten years ago, and perhaps longer, I foresaw that the practical money-making bee culture of the future must desert the rules laid down in text-books and bee-journals; that the future bee-keeper who would succeed in honey-producing must abandon all work except that absolutely necessary, and this he must be able to accomplish in the shortest space of time. This demanded a different system of management, and that, in turn, different implements, especially different hives. Then I began making and advocating lighter hives, recommending the manufacture of the brood-chamber and supers of thinner material. Of course, I was met with plenty of opposition. My lumber was "too thin for winter" and "too thin for summer." My recommendation of eight instead of ten L. frames was also heresy. Very few, at least, agreed with me, even if Adam Grimm did use eight frames. "Handling hives more and frames less" is also a part of the reform above referred to, and was the title of an article of mine published more than ten years ago, and yet I did not get on record in letters large enough and ink black enough.

Let me refer you to many numbers of the *American Bee Journal* and GLEANINGS, away back as above mentioned. Please get me on record strong, this time, Bro. Root, and record me as saying that there is nothing superior to or equal to the L. hive system except the close-fitting frame as arranged in my late invention; and that is so much better that any apiarist who thoroughly understands it and knows how to use it can handle double the number of colonies with the same labor required with any other style of hive. Are the above statements any too strong, if true? Now let the future decide; and when it comes, don't forget the past, I pray you. JAMES HEDDON.

Dowagiac, Mich., July 22.

ENEMIES OF THE HONEY-BEE.

READ IN WASHINGTON BEFORE THE A. A. A. S. CONCLUDED FROM LAST ISSUE.

Another lepidopterous insect which I have called the *wee* bee-moth belongs to the same family—*Pyralidæ*—as does the old bee-moth just referred to. This, however, is much smaller. It is the *Ephestia interpunctella*, Hübn. The larva feeds on the wax and pollen, and overspreads the comb with its fine silken fabric. It is a serious annoyance to the bees, and ruinous to the comb honey. I have this insect from most of the Northern States, and from as far south as South Carolina, where it is reported to be a serious pest. Here, as before, the exposing of combs doubtless invites attack.

Among *Coleoptera* we do not find many enemies of bees. The common flower-beetle, *Tenebrionellis molitor*, Linn., and the still more common bacon-beetle, *Dermestes lardarius*, Linn., often mutilate exposed comb in quest of pollen or dead bees, on which they feed. These can hardly be said to be enemies of bees, though they may vex the bee-keeper.

That the carabid beetles, from their chitinous armor and well-known predatory habits, would be especially likely to attack bees, we might well expect; yet I have rarely known of any such habit among the species of this immense family of predaceous *Coleoptera*. I have discovered one exception, which leads me to suspect that more of the species may have a like habit, or may acquire it at any time. The one species is *Pterosticus rotundatus*, Lec., which attacks and kills bees in Virginia and Pennsylvania. Secure in its chitinous armor this fine beetle enters the hive, and captures and carries out the bees upon which it feeds. It does not seem to suffer in the least from the attacks of the bees. It gives no indication of even being stung.

From California, New York, and Nebraska I have received one of the larval forms of some melœid beetle taken on the bees in the hive. In one case several of these were found on a single bee. Dr. C. V. Riley gives us a very full and interesting account of the hypermetamorphosis of these beetles. It is in the earliest stages that this blister-beetle larva attacks the bees. The larva at this time has a long abdomen, strong jaws, two anal stylets, and reminds us strongly of a neuropterous larva. I am not sure what species attacks bees. I think it may be *Melœ barbarus*, Lec., in California and *Melœ Angusticollis*, Say, in the East.

Among the *Heteropterous Hemiptera* there are two predaceous species which are wont to prey upon bees. One of these, *Euthyrhynchus Floridanus*, Linn., is found from Georgia to Florida and thence to Texas. I have called this the bee-stabber, as it stations itself at the entrance of the hive, and stabs and sucks the bees, one by one, till the latter are bloodless and lifeless. This bug has a powerful four-jointed beak, which fits it admirably for its fell work. The insect is purplish or greenish blue, though occasionally it is nearly black. There are orange or fulvous spots on the scutellum, thorax, and head, which vary not a little in number and extent.

Another bug, *Phymata erosa*, Fabr., often called the stinging bug, from its severe bite or stab, is one of the most formidable of all the bee-enemies. In structure and habits this bug is exceedingly interesting. It is its habit to lie concealed among the flowers, especially the goldenrods. As its color is greenish yellow, it is very inconspicuous among the flowers, and so is alike hidden from its enemies and its victims, and thus the latter run into the very jaws of death, all unaware of danger. The structure of this bug is as interesting as are its habits. Its anterior legs are strangely modified. The femur and tarsus are so hinged to the very small tibia that they oppose each other as the blade does the knife-handle as we shut our pocket-knives. Both these parts are toothed. Thus the flowers secrete a most formidable trap, which can grasp and hold even the strong honey-bee. With the bee thus entrapped, the bug has only to insert its very strong sharp three-jointed beak, to suck bloodless and lifeless the luckless bee. Thus thousands of bees lose their lives each autumn through the rapacity of this stinging phymata.

The order *Orthoptera* gives us a single species that preys upon bees. It is the common praying mantis, *Mantis Carolina*, Linn. This ferocious insect—so ferocious that the female is said to conclude the ceremonies of the honeymoon by devouring her spouse—is found from Southern Indiana to the gulf. Its peculiar forelegs, so admirably adapted structurally to grasp its prey, remind us of the stinging-bug *Phymata erosa*, Fabr., though here the femur opposes both the tibia and tarsus, all of which are toothed. That this insect often satisfies its appetite by devouring the honey-bee is incontestibly proved; yet I do not think it a very serious enemy.

Among the *Pseudo-neuroptera* (*odonata*) some of the dragon-flies are great bee-enemies, especially in the South, where they are known as bee-hawks. Their savage rapacity is so seriously felt by the bee-keeper that not infrequently boys are hired to destroy them. They are, indeed, hardly second to the *Asilidæ*, or robber-flies, as enemies of bees. It is the large species, like *Anax junius*, that are chiefly responsible for these depredations.

Among the arachnoids, all the orders contain species that prey upon bees. Not a few of the true spiders are known to capture and feed upon the honey-bee. Often the web is made close beside the entrance to the hive, so as more surely to entrap the unwary bee. I have also known spiders to hide in flowers, like the stinging phymata, and thus easily capture the unsuspecting bee as it came for nectar. Many of these spiders, like phymata, mimic the color of the flowers so closely that their presence is not detected till their venomed jaws grasp the luckless bee.

The second order, the *Arthrogastra*, also gives us a bee-enemy in a species of *Datames*, of the family *Solpulgidæ*. I have several of these from California. It is *Datames Californicus*, Simon. This enters the hive, where it captures and eats the bees. I have received this species from Central and Southern California.

Of the order *Acarina*, or mites, a small, dark, nearly black species attack and often kill the bees, or are the cause of their death, so that, through its presence and work, the hive is nearly depopulated. Like the dipterous bee-louse, *Braula cœca* they attack and destroy the queen as well as the workers. I have known these mites to do serious damage to bees in several of the Northern States.

Among the flowering plants there are several species of *Asclepias*, or milkweeds, that capture bees by means of their sticky pollen masses. I have thought these plants more friends than foes. In Michigan they are excellent honey-plants. In Grand Traverse Co., much fine honey is secured from the milkweeds. Mr. Chas. Robertson, of Illinois, tells me that he has counted over 1000 bees in a single walk captured and killed by milkweed blossoms. Besides the captures, many bees are so loaded by the sticking pollen masses, which are torn off in the struggle of the bees to escape, that the other bees consider them useless hangers on and drag them from the hives as mercilessly as they do the drones when the latter are no longer needed. The bees view social problems somewhat differently from what we do. They have no eleemosynary institutions, but turn to and banish all weak, feeble, and helpless members of the bee-fraternity.

The last bee-enemy to which I shall refer is that of microbes. Foul brood is the most serious malady of this kind. This is caused by the attack of a very minute cylindrical bacillus which attacks the brood. Its germs are conveyed in the honey from affected hives. It is a very deadly enemy of the bees; but by close study it has been conquered, or brought under control, so that now many of our brightest bee-keepers, who have had extensive experience with this microbe, have little fear of it. Yet safety demands quite a full knowledge of its habits, and the utmost caution. There are other microbe enemies, not so fatal in their effects, and not so well understood. One of the most common, causes the "nameless bee-disease." Here the imago bee, and not the larva or brood, is the seat of attack. The disease usually abates in a short time, and is thought by some to disappear upon superseding the queen.

I think I have given in this paper all the enemies that have attracted attention thus far among the honey-bees of the United States. It is probable that more will appear as the years go by. A. J. COOK.

Ag'l College, Mich.

WIRING FRAMES.

DR. MILLER GIVES HIS VIEWS.

I'm very glad the matter of wiring frames is still under discussion, and that the tendency toward horizontal wiring has not gone beyond the possibility of a protest. Horizontal wiring may be best; I don't pretend to know; but at least it will bear discussion.

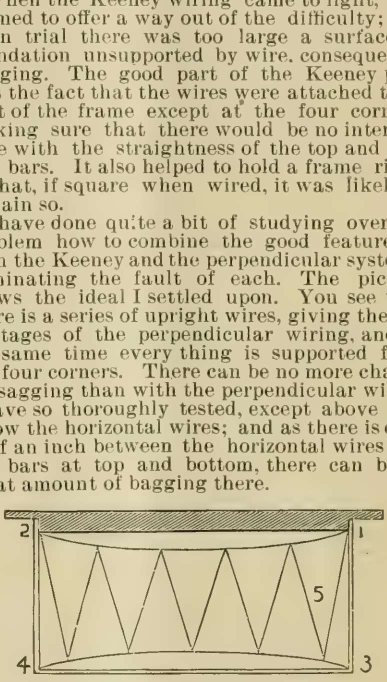
I never saw a frame wired horizontally, to notice it; but I can not readily become reconciled to the idea that we must tolerate, and make provision for sagging and bagging. Even supposing that the stretching of the foundation is not enough to materially spoil the shape of the cells, there must be allowance made for it at the bottom, and that will always leave a space between the lower edge of the comb and the bottom-bar. Indeed, I am afraid we shall always have more or less of that, the best we can do, unless we invert the combs, for I have known cases in which the foundation came clear down to the bottom-bar, and the bees coolly gnawed it away to allow a passage under it.

By the way, does the bottom-bar itself have any thing to do with this? D. A. Jones and some others have bottom-bars that, instead of being ⅞ wide and ¼ deep, are ⅞ deep and ¼ wide. What is claimed as the advantage in this? and does it do any thing to prevent the open space between the comb and bottom-bar? If there is any real advantage in that kind of bottom-bar, will some one tell us about it? You know friend Hall was quietly going on using his clumsy thick top-bars for a long time before any of us thought there was any thing good in them. Possibly we may wake up some day to find our bottom-bars are all wrong.

I have 2500 or more combs wired perpendicularly. They are nice combs, straight as a board, and until recently I felt entirely satisfied with them. But when the younger Root raised such a hullabaloo about small exact spaces, then my frames wouldn't stand close inspection. For perpendicular wiring, the wires must be drawn so tight that the bottom-bar is curved upward or else there will be bagging. Of course, there is more or less tendency for the top-bars to sag, and in a good many cases this becomes more than a tendency. But as to the combs themselves, they are all that could be asked. Possibly with top-bars ⅞ or an inch thick there might be no trouble at the top; but one would need very thick bottom-bars to keep all straight below.

When the Keeney wiring came to light, that seemed to offer a way out of the difficulty; but upon trial there was too large a surface of foundation unsupported by wire, consequently bagging. The good part of the Keeney plan was the fact that the wires were attached to no part of the frame except at the four corners, making sure that there would be no interference with the straightness of the top and bottom bars. It also helped to hold a frame rigid, so that, if square when wired, it was likely to remain so.

I have done quite a bit of studying over the problem how to combine the good features of both the Keeney and the perpendicular systems, eliminating the fault of each. The picture shows the ideal I settled upon. You see that there is a series of upright wires, giving the advantages of the perpendicular wiring, and at the same time every thing is supported from the four corners. There can be no more chance for sagging than with the perpendicular wiring I have so thoroughly tested, except above and below the horizontal wires; and as there is only ¾ of an inch between the horizontal wires and the bars at top and bottom, there can be no great amount of bagging there.



DR. MILLER'S PLAN OF WIRING.

But it is easy to make perfect things on paper. The real often differs widely from the ideal. For some weeks I was so driven with work that I could give the new plan no trial. When I did get time to try it, I found that the up-and-down wires, instead of being taut and straight as in the picture, were curved and curled in all shapes, even when I stretched them so tight that they were all pulled out of place.

Without giving all my failures, I will give instructions how to do as I finally succeeded in doing. Cut a board, no special matter about the thickness, so it will just fit easily inside the frame. Take nine one-inch wire nails and drive them about half way in at the points where you want the upright wires to cross the horizontals. This should be about ¾ of an inch or less from the edge for the two central nails near the top-bar, and for the central nail near the bottom-bar. The other nails should be nearer the edge, forming a curve. Now cut off the heads of the nails. That's all the machine you need. With an awl, punch a hole at each corner of the frame through the end-bars at 1, 2, 3, and 4. Let it be tight up in the corner. Now string a wire through the two upper holes at 1, 2. Fasten one end of it by giving it two or three turns around a ⅜ wire nail partly driven in, then drive this little nail in tight. Then stretch the wire just as tight as you can, and fasten with another ⅜ nail at the other end. This wire will then lie flat against the top-bar. Stretch another the same way, to lie flat on the bottom-bar. Cut a wire of sufficient length; run it half way through under the lower wire at the middle, then run one end through the upper wire, then through the lower, then the upper, then the lower, then through the awl-hole at 1, and fasten with a ⅜ nail. In the same way, thread the other end back and forth, and thread it through the awl-hole at 2. Fasten lightly the end temporarily on a ⅜ nail driven partly in. Now lay the frame over the board already described, letting the nails come inside the angles of the perpendicular wires. Taking hold of the wire at 5, stretch it *very* tight over the nail; then taking hold at the next strand, stretch tight over the next nail, and so on till it is drawn tight through the hole at 2, when it is to be fastened. Lifting your frame off the board, you will find it wired just like the picture, only the perpendicular wires will not be as straight and taut. But if you have stretched them quite tight they will be as good as the perpendicular wires in my old frames that have made such straight combs. I succeed in getting the horizontal wires perfectly tight.

I have described minutely the way I put on the wires, not because I think it the best and easiest way, but because it is *a* way, and I hope some one may tell us how to do it more easily It is a good bit of work, but hardly more than the old way of perpendicular wiring; but even if much more, it is, I think, the only wiring I shall use till I learn a better plan, or till I learn of faults in this that I do not now know.

Severest criticisms are invited; for if the thing has faults enough to be useless, the sooner we know it the better. C. C. Miller.

Marengo, Ill., Aug. 26.

[I think I see two objections, doctor, to your plan of wiring. The two horizontal wires have too much weight to bear. The ordinary tinned wire will pull in two quite easily, and will stretch quite a little before it will break. If one of the horizontal wires breaks, the whole is gone. Another objection, which you have incidentally mentioned, is the labor required to wire it. I am not certain, but I think I should prefer the Keeney method with the intersecting wires at the top, and the horizontal wire at the bottom. Out of some 200 or 300 combs wired that way last season, there are very few that have any appreciable bulging. But the plan which, in my estimation, is ahead of all, is the horizontal loose wires. There can be no bagging. I have tried a full sheet of the very lightest foundation we could make on a special mill, the same wired on the horizontal plan. The bees built out a perfect comb. There is no other plan of wiring with which I am acquainted with which we can use such thin foundation.] E. R.

THE PUNIC BEES.

THEIR CHARACTERISTICS, ETC.

They are truly wonderful bees, and are answering to all their claims. Mr. Alley says, "They are the most prolific, gentle, and hardy of any race or strain of bees I have ever had any thing to do with. They will supersede the Italian." The queens are the most even layers I have ever seen. Lift a fresh comb from a Punic stock, and one will see the most beautiful work in the way of egg-laying ever beheld. Every egg will point downward in line with the grain of the cells, and one could swear that the queen used a straight-edge when putting them in. Not a cell will be skipped. The bees are as quick as a flash, and are off to the field in no time. On their return they look and act like robber bees, with the same quick motions. They pass through the traps like a flash. It does one's heart good to watch them. I never before saw such lightning rapidity in motion. I have spent hours watching them and picking them up in my fingers as they go and come, simply to hear the little fellows squeal as a young queen will when handled. They refuse to sting. If the sting happens to stick a little into one's skin while being rolled about in the finger, how quickly they withdraw it and fly away!

It is a grand sight to open a full colony of Punics and see the little "niggers" at home so quiet, so unconcerned, and, to me, so beautiful because of their usefulness and not of the five gold bands. The Punics put the gold into their keeper's pockets, which is better than on their little backs.

Their length of life, and hardiness, are something remarkable. I had some imported queens come a few weeks ago that had been on the road 28 days; and after the queens had been introduced the attendants lived fully two weeks longer in confinement. E. L. Pratt.

Beverly, Mass., Sept., 1891.

The above is pretty strong testimony for the new race of bees. They may deserve it all, however, and it were no more than fair that we give a little on the other side. Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*, one who has traveled very extensively, in answer to a correspondent who wanted to know more about the new bees in his journal, says:

> As a rule we do not like to import into our columns controversies originating in other journals; but as our correspondent asks for information, for the benefit of our readers we give all we know about African bees. We know nothing of the experience of the persons mentioned, and have received no reports from any of our numerous correspondents about Punic bees. We know of no such race Amongst African bees with which we are acquainted are those from Algeria, Morocco, and Tunis—all varieties of *Apis mellifica*. They are prolific black bees, said to be good workers, but which have not sustained their reputation when introduced into Europe. Queens of any of these varieties could be purchased for a few francs, and some years ago Algerian queens were offered for ten francs apiece by M. Feuillebois at Beni-Amran. The variety cultivated by the Kabyles is shiny black, and the workers much smaller than the average European bee; the drones, however, are quite as large. The Kabyles inhabit the mountains lying toward the desert of Sahara, where they live in small villages, and derive a considerable income from honey, and more particularly from wax. These bees are called "*thizizoua thik' arriin*," and are cultivated in cylinders of cork bark, basket-work, or earthenware. Some of the natives have as many as 500 such hives. They were first imported into France in 1874, and, by their behavior, showed that they came from a warm climate. They are great propolizers, which shows that they are not used to cold. Although quiet at times, if stimulated they become very savage, and not only attack persons, but even enter the houses in their vicinity. They have not proved satisfactory in Europe, and we know no one now who cultivates them.
>
> We know nothing about the so-called Punic bees, and can give no information as to their value. Possessing as we do one of the largest libraries of bee-

literature in the kingdom, it is strange that we have never found such a race alluded to. The word *Punic* means faithless, treacherous — neither of which should be considered good qualifications for bees. Punic bees are said to come from Africa, but the only varieties of African bees we know of are those alluded to above, besides the various species mentioned on page 366 of ***B. B. J.*** for 1888.

As so little is really known about these bees we hardly think it necessary to advise our friends in their own interests to wait for reports from experienced and well-known bee-keepers. We shall take care to give any reliable information that may come to hand and be of value to our readers.

COLORADO NOTES.

HOW THEY WINTER IN THAT STATE.

Friend Root:—Here I come again with a few notes from Colorado, that land *almost* flowing with milk and honey. The honey-flow is now over, and it has been only fair, nothing extra. We had too many rains during the season, which greatly hinders the work of gathering honey. Wintering bees in this locality is something which I wish to speak to the readers of Gleanings about. We winter on our summer stands by simply setting the hives 6 to 10 inches apart, and placing old straw between, over, and behind them, and leaning a broad board up behind them and laying one on top to keep the straw from blowing off; then our work after that is comparatively light the rest of the winter. Some do not go to the trouble to put them down in as good order as I have described, but you are very apt to hear some grumbling about the time when almost everybody else is getting some fine large early swarms, and they none at all. You will hear them saying, "Why, my bees don't seem to be doing any thing at all. I think they dwindled a right smart this spring." It is no uncommon thing to hear such complaints, and I for one am ready to cry out, "For shame for such dire negligence! they don't deserve to have any thing on their farm that is as busy and industrious as the honey-bee."

LUCK NOT NECESSARY FOR PROFITABLE BEE-KEEPING.

Now, right here I say, how often it is that we hear men say that they never have any luck with bees! Why? let me ask. How many times is it that they have let their bees remain out all winter with not one particle of protection round them? How many times during the summer have you been to see how they were doing? Once, twice, perhaps three times. Once a man told me he had bees to sell. As I wanted to buy I dropped around to see them. Well, now, where do you think they were? Fully one hundred yards from the house, on the bank of a ditch, with sweet clover and weeds higher than the hives. When we mashed the weeds down, the bees rushed out like mad, but soon settled back after a ray of sunlight had passed into the small entrance. In fact, they were scared. Now, what an absurd statement to hear a man say "luck"! Oh fallacy! how foolish! Just let me say this to all who read this: There is no luck in bee-keeping. Did you ever plant a field of potatoes or corn, and then expect as big a yield without cultivation as your neighbor's that was cultivated right up to the handle? No! that's what you say. Well, I should like to ask A. I. Root, or Hutchinson or Prof. Cook, whether a colony of bees doesn't need to be cultivated in just the same manner, according to its needs, to give good returns, that a field of potatoes or a field of corn does to make it yield up to your expectations?

Now, to such bee-keepers as these (for that is all they are, just bee-keepers and not honey-producers) let me say, if you keep bees and do not take care of them as you should, if you do not get any honey, don't complain; but select some good place for your bees, keep the ground clean, and free from weeds and clover; put your bees into some good hives; attend to them regularly, supply their wants, and see how much better they will work for you. Also select some good bee-journal. Study it carefully to see what the latest novelty in bee-keeping is. Don't be a natural imitator, but strive to devise some plans and methods of your own, and put them into practical use if possible. Some prominent writer, James Heddon, I believe, once said that it is rarely that a person will succeed in business by being a mere imitator; so, now, let us not think that it's all "luck" that makes this busy world move. It is he who keeps posted in regard to the occupation he follows, and puts the theories of his own mind into active operation who shall win.

THE PORTER BEE-ESCAPE.

I will say that the Porter spring bee-escape has proven to be a very acceptable addition to my apiary, and I feel like recommending it to all bee-keepers. Buy one or two for trial; and if they prove as satisfactory to you as they have to me, you will never have cause to regret your investment.

T. V. Jessup.

Greeley, Colo., Sept. 19.

KING-BIRDS—REGURGITATION.

OTHER ENEMIES OF BEES AMONG THE BIRD TRIBE; INDISPUTABLE EVIDENCE THAT KING-BIRDS DO REGURGITATE.

In your note after Mr. McDonnell's article in Gleanings for September 15, on king-birds, you ask for further testimony in regard to the regurgitation matter, suggesting that it may be "all a hoax." Without citing further lay testimony, which could be readily done, the writer suggests a reference to those great A B C books on ornithology, the writings of Audubon, Wilson, Nattall, and Buonaparte, whose authors devoted their lives to this one study, and weeks, nay, months, in learning the habits of a single species, not only in its native haunts, but also with the bird in captivity, and hence constantly before their eyes. These books, particularly Audubon's, if not often obtainable in private libraries, can be found in all or most public ones; and with its magnificent illustrations, copies from life by that masterly hand, will repay many fold the time taken in a visit to such an institution. The plates were lost by fire, and now so greatly are these bird-portraits admired and valued, that the volumes bring the highest prices when sold at auction or at second hand, however much the text may be defaced, if only the illustrations are uninjured. In the large edition, found in public libraries, only the largest birds are represented under life size.

I feel sure that Audubon refers to the regurgitating habit of the king-bird. Nuttall certainly does, whose work is before me. After minutely describing its habits generally, he writes, of a captive bird of this kind, "which I had many months as my pensioner:" "At length the pieces of beetle were swallowed, and he remained still to digest his morsel, tasting it distinctly soon after it entered the stomach, as became obvious by the ruminating motion of his mandibles. When the soluble portion was taken up, large pellets of the indigestible legs, wings, and shells, as likewise the skins and seeds of berries, were, in half an hour or less, brought up and ejected from the mouth, after the manner of hawks and owls." Hence Mr. McDonnell and Mr. Waite have the very best authority in corroboration of their position in this matter; for it will scarcely be gainsaid that it is eminently safe to accept as fact the assertions of men of high reputation on a given subject whose lives have been devoted to the exclusive study of that one branch of science—not in the closet, but throughout the broad domain of nature, whose books have been written, not from hearsay evidence, but from notes made in many places at many times by the author himself, face to face, so to speak, with his subject whose traits, habits, or characteristics are not determined till verified by the study of other specimens of the same species, thus establishing your axiom, "In the multitude of testimony there is wisdom."

So much for his kingship the "tyrant flycatcher," who has the reputation of standing first as a bee-killer.

Down here we have a bird of another tribe or genus that, I am sure, gets more of my bees in one day than the king-bird does in a week. The latter seldom perches near the hives. This bird gets as close as he can, and he will stay all day and be on hand early every succeeding day throughout the season, unless he is killed. This is the summer redbird, *Tanagra æstiva*, one of the tanager genus, all of them bee-eaters to a greater or lesser extent. Do not mistake him for the common red or cardinal bird—they are not at all related. In ornithology this bird is described as follows: "Male, vermilion red, inner vanes and tips of quills tinged with brown; the tail even. Female, young and autumnal male (the sly fellow changes his clothing), yellow-olive; below, brownish yellow."

Unlike his cousin the scarlet tanager (scarlet and black), which comes only occasionally to get a sweet meal, this robber takes up his quarters right in the apiary, his favorite perch being a dead limb or bush close to the hives, and in the bee-highway, where he can have space sufficient to fly out and seize the incoming worker, alight again, and swallow his luscious morsel. Sometimes he even sits on the hive, catching the bees in rapid succession, just in its front, returning to it always to do the masticating part. Both sexes "work" at the same task and at the same time. Sometimes several pairs are noticed, and it is safe to say they never tire in well-doing.

My reason for thinking this bird kills more bees than the king-bird is because he gets close by where the lines of flight concentrate, and bees are always within his range, while the king-bird, perched on some tree a hundred or more yards away, is on the line of only a few bees, and he seldom comes much nearer, which, however, may be because my apiary is under a grove of forest-trees, making considerable shade. The king-bird seems to like a prominent or high perch on a leafless tree.

For both, the remedy is the shotgun; yet I imagine many if not most apiarists allow these depredators much latitude before they get roused to the point of going for the gun.

C. P. COFFIN.

Along with the above article friend Coffin sends the following beautiful stanzas:

AUDUBON'S HYMN IN THE AMERICAN FORESTS.

I keep my haunts within the woodland solemn;
  My chartered comrade is the stainless beam;
My bed is made beside some old oak's column;
    My goblet is the stream.
Whole years are mine in this majestic dwelling,
  Where Nature yet frowns back the sounding mart;
What waves of life forevermore are swelling
    Their rapture through my heart!

But not for these I wander o'er the mountains,
  And not for these I dare the hurricane;
And not for these I quaff the virgin fountains—
    A prince of hill and plain!
Oh mighty meanings from the mountain hoary!
  All natural objects o'er me solemnly roll;
These give the longed-for prize and sacred glory
    Unto my pilgrim soul.

Amid the beautiful, the strange, the holy places,
  With noonday bright or tender twilight dim,
What joy is mine to measure all the spaces,
    And find the prints of Him!
Yon long, long river, like an anthem pouring;
  Yon thoughtful silence of the lonely mere;
Yon eagle, to the sun divinely soaring,
    All, all have meanings here.

To find and read them is my joy and duty;
  Then hail, ye boundless scenes! forevermore;
How will I drink and drink your perfect beauty
    Upon the virgin shore!
Oh! give me welcome, every woodland solemn,
  And long-swept plain and mountain-piling sod;
For I pass by each stately forest-column
    To learn the thoughts of God.

[We are exceedingly obliged to you for the information you have given us on this subject. We can scarcely doubt now that the statement as made originally in the A B C book was correct. We are glad this controversy has come up, for now the true habits of the king-bird are better known than ever; and, besides, we have a better knowledge of other bee-enemies among the feathered tribes.]

EXHIBIT OF HONEY AT FAIRS.

A NOVEL DESIGN.

While in attendance at the New York State convention at Albany last winter it was our pleasure to make the acquaintance of Mr. Charles McCulloch, senior member of the firm of Charles McCulloch & Co., honey commission merchants, of Albany. This acquaintanceship grew into a sort of kinship when we learned that our friend was a Christian Endeavor man—in fact, a leader of the C. E. movement in that city. While in conversation he showed us a photograph of their exhibit of honey, made at the Albany State Fair. We requested the privilege of reproducing the same for GLEANINGS. Mr. M. has since forwarded to us a photograph, which we take pleasure in presenting to our readers, with a description of the same.

The cut, next page, shows a display of honey made by Chas. McCulloch & Co., dealers in honey, at the last State Fair, held in Albany, N. Y. It was in the form of a house 12x12, and 15 feet high. It took over 400 cases of honey, weighing in all over 4 tons, to build it. The room inside was handsomely furnished with easy-chairs, center-table, mirror, rugs, and pretty lace curtains at the windows. Over the door was the very appropriate motto, "Home, Sweet Home." It was the headquarters for all honey-producers visiting the fair, and they were made to feel at home by Messrs. McCulloch & Co., who went to the trouble and expense of the display for the benefit of their consignors, taking orders for a large amount of the honey during the progress of the fair.

CHAS McCULLOCH & CO.

KING-BIRDS.

HONEY-DEW FOR WINTERING, ETC.

In your footnote to my article about king-birds, in Sept. 15th Gleanings, you query whether the matter of regurgitation as explained by the writer (T. L. Waite) in the A B C book is not all a hoax. On referring to the A B C I notice that Mr. Waite's observations in regard to this action of the bird are referred to as "very positive evidence." I added some testimony, which I think goes to further establish it; and to your mind, because *one* observer has expressed a contrary opinion, the matter assumes the form of a possible hoax. I am not going to be too hard on you, but "in the mouth of *two* or *three* witnesses shall every word be established." The station master to whom I referred as having seen part of what I related is Mr. John A. Gallaher, Grand Trunk Ry., Branchton, Ont., who will no doubt answer for himself if called upon. I trust, however, we shall have some other of the readers of Gleanings who may have further testimony to offer on the subject, so that the evidence as regards the facts of the case will be so very "very positive" as to be finally conclusive.

I notice in different papers, Gleanings included, reference made to the question of honey-dew as winter feed, and I would incline to think that the test given by Prof. Cook some year or so ago would be a safe one, if one's taste could be depended upon to be uninfluenced by a mental bias favorable or unfavorable to the article; viz., that, if the honey-dew were agreeable to the palate, it would be safe; but if not, it would be unsafe.

In this northern latitude, with its severe winter, it is necessary to lean to the safe side of any question affecting the wintering of bees, and I am glad to be able to say that my experience with honey-dew extends only to one season, that of 1886, I think, when, by taking the precaution to extract it early in October, I have reason to believe I saved my bees. A young and aspiring bee-keeper, some four or five miles away, who did not take the same precaution, lost nearly all of his, and has never seemed to rally from the blow, and the losses elsewhere throughout the country were very severe from the same cause. This honey-dew was such vile stuff that, by merely putting the point of my finger into the combs to make sure that the dark patches were not simply some dark-colored honey, the taste was so disagreeable that it would give me a headache. Some of the patches in white combs showed almost jet black. In the extractor the smell was very rank, and the product ran out like thin black molasses.

I always find the reading of Doolittle's articles profitable; but I think that in Sept. 15th journal was particularly timely and valuable. I have had some of this changing to do, and know, on a small scale, what it means in time and money, and I believe the principle he laid down at his start in bee-keeping is a safe one to anchor to in almost any line of business. I have seen and been personally interested where thousands of dollars were squandered in adopting every thing new, and business failure followed on the vacillating course accompanying this weakness. I do not believe in that conservatism which amounts to old fogyism, so that progress and improvement are made utterly impossible, but I believe in making the most of what one has, and that it is well to go "canny" in making changes, for the reason that "a rolling stone gathers no moss."

R. W. McDonnell.

Galt, Ont., Can., Oct. 6.

[Our answer was not intended to imply that regurgitation of king-birds was a hoax, but to call out further facts. Your testimony together with that on page 311 settles the matter that the A B C is right.]

PAILS FOR MARKETING HONEY.

FRIEND FOSTER SCORES ANOTHER VICTORY.

I read with interest in Gleanings for Aug. 1st and 15th, a year ago, the answers to questions propounded to honey-dealers as to the best packages for honey for the various markets. I was surprised that only one firm makes any mention of pails for extracted honey. Perhaps one reason is, that much of the honey shipped to commission men goes into the cake-factory, or some other factory, before it finds its way to the family table. I have found that, where I once make a sale of honey in the cheap and neat "raised-cover pails," holding from 1½ to 12 lbs. each, it is hard to sell extracted honey in any other form. Although I often sell 60-lb. cans to large dealers, there are comparatively few families that use so much honey before it granulates; they want it only occasionally, with hot biscuit, for tea, or with pancakes for breakfast. But when they find it is hard, rather than have the task of warming up the large can they content themselves with syrup.

The pails, when empty, are just what is wanted, while the cans are in the way. Just before shipping these pails I lift the cover and slip under each, upon the hard white surface, a slip of red paper printed as follows:

> All pure extracted honey granulates hard at the approach of cold weather.
>
> HONEY.
>
> To liquefy it, set the pail or can in warm water—*not too hot*, or the flavor may be injured. If you can bear your hand in the water there is no danger.
>
> Oliver Foster, Producer,
> Mt. Vernon, Iowa.

Perhaps one reason why honey in pails has not found a more extensive market is, that, since the article has found a place in the freight classifications, it has been classed as "*double first-class*" *freight*, while comb honey is classed as first class; cans boxed, as second class, and barrels as third class. Being impressed with the injustice of these rates on honey in pails, I sent to the Superintendent of the Western Classification Committee a sample pail of honey, with the following letter:

Mr. J. T. Ripley:—Allow me to make you a present of a pail of honey as a sample package for shipment which is becoming very popular. My object is, in behalf of the honey-shippers of the country, to call your attention, in this friendly way, to an oversight or misapprehension on the part of your committee in fixing the classification of "honey in pails." Your committee may have had in mind the old-fashioned "strained" honey, or perhaps comb honey in a broken state; whereas, you will find, I think, upon investigation, that 99 per cent of the honey now shipped in pails is *extracted* honey in the granulated form, which, as you see, is a very different article. The agitation it receives in being thrown violently from the comb, breaks up the texture, causing it, in a short time in cool weather, to granulate very hard, in which state it will remain through the warmest weather. These pails are usually shipped in convenient boxes with handles, holding about 125 lbs. each.

I think you will agree that this form of package is safe for shipment, and most convenient for shipper, carrier, retailer, and consumer; but the present classification (double first-class) is prohibitory.

I would suggest that a just classification would be, "extracted honey (granulated) in pails boxed, second class." Liquid honey should not be received as freight except in sealed packages.

Trusting that a fair consideration of these suggestions on the part of your honorable committee may result in securing to the many railroad companies you represent the patronage of a large class of shippers, I remain very respectfully yours,

Mt. Vernon, Ia., Feb. 16. **Oliver Foster.**

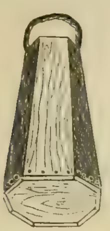
His reply, dated Feb. 19, reads as follows:

Mr. Oliver Foster:—Answering your favor of the 16th inst., will you please describe more fully the package or box in which your pails of honey are packed? also say if it would be correct to describe the extracted honey as "granulated honey," which name, it seems to me, would indicate more clearly the character of the goods as an article of freight.

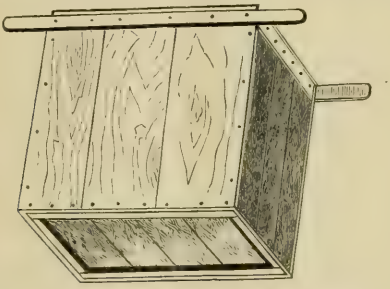
Chicago, Feb. 19. **J. T. Ripley.**

In reply to which I wrote as follows:

Mr. J. T. Ripley:—Answering you favor of the 19th, I will make a sketch on the back of this sheet showing the two styles of boxes I use for shipping honey in pails. The small box is for one set of five pails, as shown in price list inclosed, and the other is for four sets of the same. Shippers as a whole have as yet no uniform package for pails. Your suggestion, to describe extracted honey in pails as "granulated honey," is a very good one. The term "granulated honey" is perfectly correct, and is in very general use with bee-keepers and honey-men. "Granulated honey in pails boxed," strikes me as the form in which to put it. This could not be construed to apply to such extracted honey as might be unscrupulously offered for shipment in pails *before* granulation has taken place.



Box for one set (or nest) of pails, with rope handle, sides ½ in. thick, bottom and top ⅞ inch thick.



Box for four sets pails, about 16 in. square; bottom and sides ¼ to ⅜ in. thick; handles and bottom strips, ⅞ x 1½.

Any further information you may wish on this subject will be gladly given. **Oliver Foster.**

Mt. Vernon, Ia., Feb. 20.

His reply of the 21st gives the gratifying result. This classification applies to fifty or more railroads throughout the West. As to classification on other roads, I know nothing.

Mr. Foster:—Answering your favor of the 20th inst., I will rule as follows: "Granulated honey in pails, boxed O. R., second class." **J. T. Ripley.**

Chicago, Feb. 21.

Mt. Vernon, Ia. **Oliver Foster.**

[Many thanks, friend F. You have done bee-keepers a valuable service, and we owe Mr. J. T. Ripley another vote of thanks. He has kept his promise, as the revised Western Freight Classification shows. Mr. Ripley has certainly shown a disposition to be reasonable and fair toward bee-keepers.

Those raised-cover tin pails are excellent for the purpose. We sell large numbers of them. They are so cheap that the honey-producer can almost afford to throw in the pail; but even when he adds the price of the pail to the honey, the consumer makes no objection, because such an article is always available in every home. Now, won't some one get up some plan whereby we can granulate liquid honey on short notice, even in warm weather? Consumers are being gradually educated to this granulated honey, and very many prefer it in that form to any other to spread on bread and butter.]

SUPERSEDING THE OLD QUEEN.

HAVING QUEENS FERTILIZED IN FULL COLONIES HAVING A LAYING QUEEN.

I notice Dr. Miller says in Stray Straws that he "tried superseding quite a number last year by having a young queen hatch out in a cell-protector. They hatch out all right, and would be found peacefully traversing the combs; but before it was time for them to lay, every last one disappeared. If I had removed the old queen, I have no doubt all would have been lovely."

This item is of special interest to me, being right in my line of experiment involving my plan of having queens fertilized in full colonies having a laying queen.

It is not necessary to remove the old queen—simply divide the brood-chamber into two parts with perforated zinc; and instead of putting in one zinc division-board, put in two, about half an inch apart; or, what is better still, put the zinc division-boards far enough apart to allow a comb between them and then fix a strip of zinc before the old queen's half, and the young queen will be fertilized, and lay as certainly as if she were in a separate or nucleus hive. I have tried more than a hundred in just the way Dr. Miller describes; and so long as the young queen was admitted on the combs where there were eggs, nearly all came up missing. I think they thought they were not needed, and flew out of the hives and never returned. I do not know that I ever had *one* become fertilized when eggs were present; and it is my belief that, if the old queen should travel across one of the combs, it would have the same effect.

The reason I think it is the young queen's fault is this: I make a queen-nursery with Benton cages by suspending them between the combs by a raveling of wire cloth attached to a match that rests across the top of the adjacent frames. The cells are thus arranged in the cages to hatch; then when the young queens need food it is provided by the bees. Before the cells are put in, a fourth-inch hole is bored through the wood into the cage, and a piece of zinc with one perforation in it is tacked on, so when it is turned it may or may not admit bees into the cage and exclude the queen. I often keep a dozen to twenty young queens in this way until I have use for them, and it is often they are kept until they are too old to become fertilized; and while I used to lose a great many by the old method where bees were not admitted, I have never known a single one to die treated in this way, and I have kept them from July to November, and a laying queen outside the cages.

If we divide a colony into halves by a solid division-board, queen-cells will be built in the queenless half. If a division of perforated zinc is used, the effect is almost the same. They may build queen-cells or they may not. If they don't, put in the solid board; and when the cells are started, take out the solid board and put the zinc in its place, and the cells will go on just the same. This raising the second queen in the same colony is a grand key to success. It succeeds where any sort of introduction fails. But the queens must be kept more than a sheet of perforated zinc apart, so I place the old queen on a four-frame restrictor in one side of the hive, put in one zinc division-board and slide the entrance-blocks along, and the young queen has the privilege of flying from the hive and returning safely to her own apartment, and the bees go on storing honey as usual. C. W. Dayton.

Clinton, Wis., Sept. 15.

A BEAUTIFUL CARPENTER BEE.

THE XYLOCOPA.

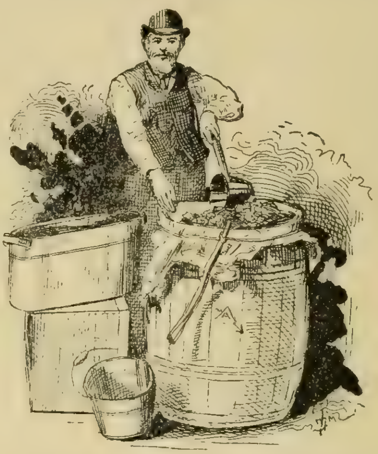
The handsome bee received through you from F. I. Tyler, Bakersfield, Cal., is a species of *Xylocopa*, or carpenter bee. It is as yellow as the yellowest Italian, and is a beautiful addition to our cabinet. It is a new species to our collection, if not to science. I wish I could get eight or ten more like it. In its long abundant hair and yellow color it differs from most carpenter bees, and reminds us of the bumble-bees. Carpenter bees are usually black, blue, or purple. The habits of these carpenter bees are well known. They bore into wood to form their cells, store these wooden cells with pollen, and lay their eggs in this, so that, as soon as the eggs hatch, the little carpenters can have bread (bee-bread) close at hand. We see our friend Aspinwall was not the first to construct wooden cells. These bees frequently tunnel into cornices and window-casings, and do no little mischief. I have frequently recommended the filling of the tunnels with an ointment made of either lard and kerosene oil, or sulphur and kerosene oil. This always drives them away at once. I have never known it to fail. The bee sent is a female. I should like very much to secure a male, if no more.

Ag'l College, Mich. A. J. Cook.

WAX BLEACHING; HOW 'TIS DONE.

A SIMPLE AND EFFECTIVE WAY OF RENDERING WAX.

Friend E. R. Root:—In answer to your footnotes, p. 662, under the last Ramble, in relation to the process of wax-bleaching, the process is so simple there is but little detail to it. At first the wax has to be frequently loosened up, and is emptied from the trays on to the wide bench where the men are seen breaking up the chunks and loosening it up to the light. It is then returned to the trays; as it progresses toward the finish it requires less of this loosening process. I understand the wax is bleached to whiteness because it can then be handled better in the incorporation of colors. The candles, to a great extent, are white; also the wax for the drug trade. From the amount of bleaching done I should say that yellow wax would be called crude in this factory. As to the amounts of other ingredients used, it depends entirely upon the class of goods made. I did not investigate this point closely, for I was aware that I might be treading in the forbidden paths of trade secrets, etc. There is no deception, however, here in relation to the class of goods sold. They are true to name and description. While upon the wax subject I wish to call your attention to a method of rendering which is quite rapid, and which, though old, I have never seen described. This method is practiced by Mr. Solomon Vrooman, of Hartford, N. Y., in preference to any of the many methods recommended. The wax is melted in a boiler or large kettle, and thoroughly boiled until all the lumps are finely pulverized. A square of very coarse burlap is placed over the end of an empty barrel, a stout cord tied around, and a twist taken with a stick to hold it secure. The hot melted mass is then dipped on to the burlap, which will soon bag down and hold several dipperfuls. It is then pressed and ground around with the side of the dipper until all the wax is out. The dross is thrown into a pail, and another charge manipulated. Steam from the heated wax and water that goes into the barrel keeps the mass in the burlap from cooling, and the mass can be worked for a long time if desired. The Rambler has tried this method on a batch of 200 lbs., and prefers it to the press method as being cleaner, and accomplished more rapidly, and the dross is so free from wax that there is no necessity of further treatment. The photo shows the method and Mr. Vrooman so plain that any further explanation is unnecessary.



VROOMAN'S PLAN OF MELTING WAX.

PRIZE
STRAY STRAWS
GORE
GORE
A YEAR AMONG THE BEES
WE I

RAMBLER PROPOSES TO FIGHT IT OUT.

The clear wax can be dipped from the barrel into any kind of molds desired.

Tell Dr. Miller *we* are going to shake our *we* and *I* banner more than ever. The way he goes for all who differ with him upon that *very important* subject reminds the Rambler that the accompanying cartoon just expresses the situation. RAMBLER.

LADIES' CONVERSAZIONE.

OUTDOOR FEEDING TO PREVENT ROBBING.

SOME GOOD SUGGESTIONS FROM MRS. AXTELL.

Sometimes during the summer I go out to the woodpile and carefully scrape up the clean small dry chips and fill into barrels, being careful that there has been no rain for some time before gathering them, and get the men-folks to set them away under shelter for next year's use. These, mixed with a little rotten wood for starting the fire, make excellent smoke with little time to prepare it. Where an old fence is being rebuilt there are always plenty of old rotten rails the builder is glad to give away to be rid of, that, if gathered and laid away, make excellent smoke when chopped or sawed up fine, or mixed in with the chips; also dry corncobs, pounded just enough to split them open, and mixed with other fuel. It makes the work of handling bees much easier if one has plenty of smoke just when he wants it, and the smoke-wood all in readiness. To have good smoke, the fuel must be dry. The smoke does not gum up the smoker so badly either. I have been asked to look at others' bees when I had to wait for them to run and hunt up the smoker, one member of the family looking here and another there, and all in commotion, and then smoke-wood had to be hunted up out of the woodpile or barn, or along some fence, which, when found, would generally be wet or damp, and would not burn well; or sometimes only very rotten wood that burned out too quickly. Then some inferior face-protector was brought, full of holes. By the time I was ready to work at the bees, if all things had been in readiness for work, it would have been done.

ROBBING.

Toward the close of the honey-dew harvest, even when we could shake honey out of the combs, we had to work very carefully to keep all exposed honey covered, and close hives quickly, or the bees would be in a terrible hubbub of robbing as Dr. Miller speaks of. At one time after honey harvest closed I had considerable work I wanted to do. I got the bees quite aroused before I realized how bad they were. I remembered how nicely I could work with them while they were feeding from the troughs of sweetened water. I went immediately and filled up their trough with floats, poured in sweetened water, and set the robbers to work, at the same time covering the robbed colonies with wet sheets. Pretty soon all robbing ceased, and all were intent on bringing in the sweetened water. After the robbers had left I uncovered the hives being robbed and let them work too.

For open-air feeding, only slightly sweetened water should be used, or they will sting each other badly in the troughs and around the trough. On the grass for several feet away they will be seen fighting and dying, as they are often seen to do in the honey-house where they have access to combs of honey. If we catch a bee as it comes in from the fields, with its honey-sac full of nectar, and kill the bee and taste the nectar, we notice that it is not very sweet. It only tastes like sweetened water, so that is as sweet as the bees should be fed out of doors. They not only kill each other, but they daub themselves up so badly that many are unable to reach their hives, and are lost in the grass and dirt.

ESCAPES.

To give best results with escapes we found they need to be left 48 hours after being raised up. Some supers could be taken off in 24 hours, while a few would not all get out, so that they might as well remain until all were gone, and a clean thing made of the work.

At our out-apiary we have so good an escape window in our honey-house that we concluded this summer it was about as convenient to smoke them well and stand supers on end in the house in such a way that the light from the windows shone through the spaces in the sections, which attracted the bees quickly to the windows, so that, in two hours, many cases would be cleared out; in half a day all would be gone.

The bees nearly all find their way back to their own hives. Possibly the young bees went into the nearest hives; but if so, they would be received all right, because they were young bees. Carrying them into the honey-house saves opening the hives twice. Apiarists whose supers were set on top of the hive would not mind lifting the lids to take the supers off the second time; but our supers are set inside the hives. We have to take out the back-board or back end of the hive; and by the time we got the super raised up, especially hives that were not high enough to take in a slatted honey-board and the bee-escape, the bees would be coming out pretty lively at the back side of the hive, except as they were smoked back; so that it takes, with our hive, more time than it would with some others to get the bees brushed off and board returned and hive closed; and the dripping slatted honey-board, unless great precaution is used, would cause robbing. Some of our hives will take in both the slatted honey-board and the escape-board. In that case the hive is closed up so tightly there is no danger from robbing.

At an out-apiary where supers are set on top of hives with no hive surrounding them, and then lifted up with an escape put under, in the hands of careless bee-keepers I fear some will find their honey robbed out unless great care is taken that there is no crack or opening large enough for robbers to push themselves in, as there are no bees to keep them out, as they can crowd themselves through a very small place when in search of honey. At a home apiary such robbing would be detected.

BUILDING UP WEAK COLONIES.

We thought to place an escape over a very weak colony, and place on top several supers with adhering bees as they came from the hives to build them up, as we have often done, unless using the escape-board; but we found it would not work, as every bee that passed down into the colony was killed and dragged out. They were making a wholesale slaughter. Seeing that they were killing them off so fast, I had the supers removed and the escape-board taken away, a cloth laid over the frames, except a space at one side, so the bees could readily go up into the combs of honey, and all fighting ceased. The bees in the supers were from several hives, so they readily united; and, being in a strange hive, they would not fight, and the honey stopped the bees of the colony from killing the incoming bees. Then they united peaceably, and formed a nice strong colony. So long as there is unsealed honey in supers

they will not uncap the other; but this fall, as all our honey is dark we would not care if they did uncap some of the combs.
Roseville, Ill., Sept. 6. **Mrs. L. C. Axtell.**

[My good friend, your plan of getting rid of robbers by feeding sweetened water instead of syrup is one of my old hobbies, if you remember. At the time of my experiments, however, I preferred grape sugar, for the reason that it was not as sweet as cane sugar, and they did not care very much for it. I assure you it was refreshing to get every robber out of the way, simply by drawing them off with a very little cheap sugar. One objection, however, to this very weak syrup or sweetened water, was that it soured very speedily, especially in hot weather, if I gave more than they took up at the time. Yes, I too discovered how the bees would fight and get daubed if it were just a little too sweet.

Do you not unconsciously give us an illustration of some of the very inconvenient features of the closed-end frame you use in connection with the old Quinby hive? Yes, I have seen just the result you mention, in taking bees from one colony to give to another. Unless you take pains to let the inmates of the hive get a taste of the honey to make them good-natured, they will sometimes sting, even when the new comers are gorged with honey.] A. I. R.

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

Question 194. *In a locality where flowers are late in blooming in the spring, would you advise supplying some substitute for pollen? If so, name two or three of the best.*

Yes. We use flour, rye or wheat.
Illinois. N. W. **Dadant & Son.**

Yes. Rye or corn meal, or wheat flour.
Vermont. N. W. **A. E. Manum.**

I have always found enough pollen left in the combs, but the best substitute is flour.
Louisiana. E. C. **P. L. Viallon.**

I don't think as favorably of feeding pollen substitutes as I used to.
Ohio. N. W. **H. R. Boardman.**

Rye and oats ground together make an excellent feed. That's all I have ever tried, and it is seldom necessary in this latitude.
New York. E. **Rambler.**

No, not here. I would not supply any substitute. I have repeatedly tried it, and found it would not go. It looked to be a howling success, but it was not.
Michigan. S. W. **James Heddon.**

Most assuredly, if the bees are short of pollen for breeding-purposes. I would use either pea flour, or wheat flour mixed with honey, and placed in the combs.
Ohio. N. W. **A. B. Mason.**

Yes. Rye, oats, and wheat are good. While I have never tried it, I think peas or beans would be better. Corn meal will not do, as they can not carry it.
Illinois. N. C. **J. A. Green.**

No. I would not supply any artificial pollen if the flowers furnished plenty when they did come, even if it were late. My experience in that direction has satisfied me that it pays better to wait till nature comes to the rescue.
Wisconsin. S. W. **S. I. Freeborn.**

The best substitutes for pollen are rye flour and pea flour. But if you take care of your combs of pollen of the previous season, substitutes are hardly ever necessary.
Ohio. S. W. **C. F. Muth.**

In this locality natural pollen is to be had as soon as it is warm enough for bees to work without loss. If I used a substitute I should prefer rye flour.
Illinois. N. W. C. **Mrs. L. Harrison.**

I would use unbolted wheat flour. My miller told me that, on one occasion, the bees came in great numbers and worked in his flour-chest as it came warm from the stones.
California. S. **R. Wilkin.**

In this locality bees can get pollen as soon as they can fly safely. I imagine that this is pretty generally true. In case there is a lack of pollen I should advise oat or rye meal.
Michigan. C. **A. J. Cook.**

There are some localities where it pays to furnish rye flour. A cheap wheat flour, known as daisy flour, is taken quite readily. Pea meal, recommended by British bee-keepers, is probably better. We do not feed.
New York. C. **P. H. Elwood.**

In my home yard I have used some rye flour in early spring, but I don't know that it ever did any good. I don't think I shall bother to use any more. My bees always gather pollen in the fall, so they have plenty of pollen in spring, and don't need flour. If I thought they had no pollen in their combs in spring, then I would give them rye flour.
Wisconsin. S. W. **E. France.**

I do not know that this pays in dollars and cents; but the "fun" pays me, for it is lots of fun for me and all who call at my house to see the little fellows roll over and over in the meal. I consider corn meal ground fine just as good as any, while all that the bees do not use is not wasted, as it can be fed to the cow, horse, sheep, or chickens.
New York. C. **G. M. Doolittle.**

Not very much to be gained on that line, I think; yet there is no harm in furnishing pollen substitutes when the bees go for them eagerly. They work with great zeal sometimes at fine dry sawdust. Let them have the choice between a lovely article of sawdust and rye flour. While I think of it, feeding flour is sometimes complained of for getting the combs full of little solid lumps that the bees have to tear out to get rid of.
Ohio. N. W. **E. E. Hasty.**

If the weather were pleasant enough for bees to work, and they could not get enough natural pollen, I would try to give them all they would take of some ground feed I was using for horses or cattle. You see, if they use only the finer parts the rest can be fed to the cows after the bees are done with it. I think I have liked ground corn and oats the best. Corn meal will do, but it is pretty heavy for them to work. Rye, wheat, barley, buckwheat, are good; but I would have neither of them bolted—both because it is pleasanter for them to work on the unbolted, and because, I think, some of the best is bolted out. The different brans are good if not cleaned too close. Pea flour is used in England, but I suspect it would be too expensive for us.

Illinois. N. C. C. MILLER.

[It seems to me, friends, that this whole matter hinges on a locality or season, where pollen is plentiful and where it is not. Now, there are seasons when our bees seem to care but little for meal, and at other times they seem just crazy for it. At such times I have examined hive after hive without finding a trace of pollen. They were actually powerless to raise brood unless they could find some substance that would answer as pollen. They went to a sawmill near by until the people complained that they could not handle the lumber on account of the bees, and the piles of sawdust were also covered with them. They went inquiringly into the barns and stables, and seemed to be crazy for any thing in the line of meal, flour, or chopped feed. At such times, oats and rye ground together were taken with wonderful avidity, and brood-rearing started as if by magic. The largest honey-yield I ever reported came after the heaviest meal feeding we ever had, and visitors from adjoining apiaries expressed great astonishment to see my hives so crowded with brood when theirs were not. Friend Hasty speaks of solid lumps of hardened meal or flour in the combs. We found quite a little in our combs during one season, but we didn't discover it until extracting time. The bees seemed almost unable to get it out without cutting out the combs or excavating it and letting it tumble on the bottom-board. That spring we fed fine white-wheat flour. In feeding oatmeal and rye I have never noticed any such trouble. My answer, therefore, would be, whenever there is such a state of affairs that the bees seem greedy for the rye flour before the natural pollen comes, and when examination at the time shows that their hives contain no pollen, I would most assuredly give them some of the substances mentioned above. When, however, natural pollen comes, as soon as they fly freely, or when there is pollen enough in the combs, I would not fuss to give them a substitute, unless it were, perhaps, a very little, "just for the fun of the thing," as Doolittle puts it.] A. I. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

"RASPBERRY APIARY" REPORT FOR 1891; LEATHER-COLORED ITALIANS; HOW THEY ROLL IN THE HONEY.

The hives used are "Bristol L.," and the strain of bees is one cross, since coming from A. E. Manum's leather-colored; and while not quite as gentle as some of the handsome, dude-looking, five-banded hybrid bees so much lauded for their beauty, yet if any one wishes bees for honey I advise him to obtain some of A. E. Manum, of Bristol, Vt., as I know they are good, and, as sent out by him, pure Italian. April 27 I had two good colonies, two fair. May 11 I put upper stories with queen-excluders on Nos. 1 and 2, and moved No. 3 to Barre. On June 5th, all were in prime condition—Nos. 1 and 2 storing some new honey. On June 15th I extracted from Nos. 1, 2, and 4, 150 lbs.; June 20th, from Nos. 1, 2, and 4, 170 lbs.; June 27th, from Nos. 1, 2, and 4, 200 lbs.; July 2d, from No. 1, 80 lbs.; from Nos. 2 and 4, 100 lbs.; July 16th, from No. 3, 60 lbs.; July 23d, from Nos. 1, 4, and 3, 110 lbs.; Aug. 3d, from Nos. 1 and 4, 100 lbs. Total, 970 lbs. In the way of increase I saved two swarms. At least three large swarms went to the woods, as no one watched for swarming. I clipped the old queens' wings for the sole object of keeping them at work for me as long as possible. Bees are now in good condition; but if the fall flow fails I shall have to have returned to them for winter, 170 lbs.

I wintered in the cellar. Honey sources, fruit, raspberry, white and alsike clover, basswood, and goldenrod. The remarkable record of 80 lbs. of honey as the net gain for four consecutive days, of one queen's bees, in one hive, is something which I do not remember having heard of. The honey is of very good quality.

Barre, Vt. H. W. SCOTT.

[Your report is good, but we must not overlook the fact that the product from a few colonies is usually much greater in *proportion* than from a larger number.]

THE HONEY-CROP IN NEW HAMPSHIRE; A GOOD SEASON REPORTED.

New Hampshire has furnished the Union its proportion of great men, and has done it handsomely; yet it can not show a great number of "way up" bee-keepers. Out of New Hampshire's granite flows an abundance of water, but honey doesn't seem to flow so freely; but scattered here and there over the rocks are farms, and on these farms are flowers, and in these flowers honey is to be found. Bees find it and carry it home to their families. Then comes man, with all his selfishness, and claims a lion's share; and thus it is that, as I write, some of the most delicious honey that flowers ever produced is tickling my palate, and making glad my heart. Bee-keepers of New Hampshire have had a very prosperous season. To be sure, the bees died out badly during the winter and spring, but the honey-flow has been all that could be desired. Not for a good many years has there been so much white clover. It has grown everywhere—by the roadsides, in the pastures, gardens, in dooryards—anywhere and everywhere; and that it contained honey, our bee-hives fully attest. Bee-keepers in this vicinity all tell me that they have never known honey to be more abundant; but the weather has been unfavorable a part of the time. However, more honey has been secured than for several years. There is no purer, richer-flavored honey produced in any part of the United States than in New Hampshire. There can not be. Perhaps there is no place where honey brings so high a price. The retail price is uniformly 25 cents per box, and it is scarce at that. We should judge from reports, that this season has been more favorable than last in almost every section of the country. Honey should bring a good price, as it has been pretty well cleaned up during the past year. A. D. ELLINGWOOD.

Berlin Falls, N. H., Aug. 28.

BEE-PARALYSIS SLIGHTLY CONTAGIOUS; THE SALT REMEDY A COMPLETE CURE.

By your correspondents it appears that bee-paralysis (nameless bee-disease) is very prevalent. In my opinion it is caused somewhat by the quality of the honey consumed. I have been troubled in past years, but succeeded in curing the disease last year by the use of sugar syrup with a trifle of salt in it—about half of a level teaspoonful of salt to one pound of sugar. If too strong of salt it will kill the bees, as I found by experience. At one of my out-apiaries I directed the boy in charge to feed a colony that was badly affected. On my next visit I found half of the bees dead. The feed was stopped and the colony was cured. For an ordinary colony, feed a pint of syrup every three days. Sprinkling with brine often gave a short stop, but no cure to the disease. The little salt that mixed with the honey probably produced the effect. I have noticed, that, when the bees gathered a better quality of honey, colonies slightly affected soon became all right again. I find the disease to be slightly contagious. Hives that were a few feet in front of the affected colony would soon be affected. Contact with the sick and dead bees that were on the ground apparently caused it. L. M. Brown.

Glen Ellen, Ia., Sept. 15.

[Mr. Alley, of the *Apiculturist*, claims the idea of salt as a cure for the bee-paralysis, as you will see by editorials in Sept. 15th Gleanings. We are glad of your testimony to the same effect. Judging from reports, we are inclined to believe that the disease is slightly contagious.]

DO KING-BIRDS REGURGITATE? FACTS TO SHOW THAT THEY DO.

I notice in the Sept. 15th Gleanings that you solicit further testimony on the matter of king-birds having the power to regurgitate, or disgorge, which I think is just as good a word. I can say it is no hoax, as I have seen it done. A few years ago I saw one sitting on a fence-post within 30 paces of me, so there could be no mistake about it. He went through about the same motions as a pigeon does when feeding its young. I saw him plainly eject a wad as large as an ordinary tobacco quid (but not as nasty), which I poked apart with a stick, and found it composed of parts of insects, but no bees, although I have opened them many times and found worker-bees in the gizzard. King-birds are certainly a nuisance to bee-keepers, but I am inclined to think that, on the whole, like all insectivorous birds, they do more good than harm. E. D. Barton.

East Hampton, Ct., Sept. 23.

[Friend B., I am sure you are right. I am personally acquainted with the gentleman who made the statement given in Gleanings, and I know he saw exactly what he states. He may possibly have been mistaken in the kind of bird; but there is certainly *some* bird that makes a practice of catching honey-bees, and, after it has squeezed out the honey, it disgorges the pomace.] A. I. R.

CRATES FOR CRATING UP CASES OF HONEY.

I see that you recommend crating comb honey for market in same size as I crated mine last year; and I also see that you make crates for sale. Now, I should like to know whether you make them the same as I did. If it is not too much trouble for you, I should like to have you give me dimensions of different pieces, and number required per crate.

Matthias Schneider, Jr.

McIvor, Mich., Aug. 11.

[We took the idea of crates for crating up cases, very largely from those you sent us last year. We have made up a small crate that will hold nine 24-lb. cases, or eighteen 12-lb. The bottom is made of a frame of ⅞x2-inch stuff, 19x36, ½ inch. The long pieces stand on edge; the short pieces nail crosswise on top, and between them are nailed four pieces of 6-inch crating, ⅜ thick, 19 inches long. The handles are about four feet long and ⅞x4x5 inches. On each side are 3 pieces of 6-inch crating, also 19 inches long, nailed to the outside of the bottom strip and to the inside of the piece forming the handle. These pieces of 6-inch crating 19 inches long are just what we used to make boxes to ship sections in; and as most bee-keepers have a surplus of these they can utilize them in making crates. There are also three pieces across the top, about 21 inches long, and one up each end, about 17 inches long. The ends of the section boxes could be used to form the ends of the crate, as they are just the right length. Our shipping-cases, as we now furnish them, have glass on only one side. In putting them into the crates, the glass should be turned in so that none of it is visible. This, at least, will be required according to the new ruling of the Western Classification Committee.]

BROOD IN SECTIONS WITHOUT QUEEN-EXCLUDERS; ONE WHO CONSIDERS PERFORATED ZINC INDISPENSABLE.

In May 1st Gleanings, E. C. L. Larch and E. R. say they need no queen-excluders to keep brood out of sections. Will they please tell how they keep the queen from the sections without using something to keep her out? I use 10 L. frames in my hives. I use both wide frames and supers, and get brood in both. I have had half of 48 sections in wide frames spoiled with brood, and had lots of it in my supers. I often have them, when I fill the sections ¾ full of foundation, fill the bottom with drone comb and brood, and get plenty of worker brood in sections. I don't see how people can get along with eight frames. By the middle of May many of my hives had ten frames of brood; and where I had two stories of worker combs for extracting, some queens had 12 frames; now some have 14 frames of brood. E. D. Howell.

New Hampton, N. Y., June 5.

[You must have extra prolific queens. Our correspondents generally agree that it is not necessary to use the excluders for comb honey, simply for the reason that no brood gets into the sections. Perhaps we shall have to settle the difference on the bar of locality.]

WEDGING SECTIONS IN SUPERS BOTH WAYS.

Has any one ever tried wedging sections in the Dovetailed hive endwise as well as sidewise? It seems to us that it would be less work to put the sections on the section-holder slats without the end-pieces, and have an end-board as a follower, like the side, only of suitable length, with a wedge. The sections could then be wedged up perfectly square and true and tight, so that there could not be any propolis put between the sections at all; and then by using separators 4¼ in. wide, with insets cut in them to correspond with the sections, the bees could only touch the sections on the edge where they entered the sections and the inside. We had intended to try this method this season, but have had no chance on account of poor season.

J. W. Rouse & Co.

Mexico, Mo., Sept. 4, 1891.

[Oliver Foster, of Mt. Vernon, Iowa, wedges sections both ways; but it does not seem to be practiced generally. The object sought is a good one, but the methods for producing this double compression do not seem to be accepted.]

WAS IT THE WORK OF KING-BIRDS?

I had nine stands in chaff hives last spring, and had only two swarms issue this season. Now, did the king-birds take the queens when they were out on the wing? They were very thick here. My bees are not making very much honey this season. It has been very wet here. I think the birds took them.

Geo. Paddleford.

Tunnel, N. Y., Aug. 27.

[King-birds had nothing to do with the swarms not issuing. It was due to your poor season.]

RETURNING SWARMS A LA DADANT A SUCCESS.

During the month of August I returned 17 swarms as directed by the Dadants, in reply to J. W. Murray, page 541, and only one of the 17 came out a second time, and that was over two weeks after they were returned. I cut the cells out of only one colony before returning the swarm, and that was a colony that I was changing from a single-wall to a chaff hive. The most of them were returned in 48 hours; but on account of rainy weather a few swarms were not returned until 96 hours. I consider this the best method yet devised to prevent increase, and shall practice it extensively on early swarms next season. S. W. TAYLOR.

Harveyville, Pa., Sept. 8.

CLOSED-END FRAMES IN A TIGHT-FITTING CASE.

I am afraid of the close space at the end of some closed-end frames, for I am sure to find the moth there in my locality, and yet I don't want a bee-space at the end of such frames. I shall try both.

I should like to ask Dr. Miller whether he ever tested queens from cells reared with caged queens, as mentioned on page 480 of GLEANINGS, 1890. Bro. Alley says, on page 120 of the *American Apiculturist* for May, 1889, that in some cases the queen was caged, but the queens reared in that way have proven worthless in my apiary. My experience confirms his.

Galesburg, Mo. W. L. SMITH.

HOW TO CARRY BEES INTO THE CELLAR WITHOUT BOTTOM-BOARDS.

I should like to have some one tell how to manage to keep bees quiet while putting them into a bee-cellar, without bottom-boards, or raised from the bottom-board, as some recommend; also method of setting out.

Greenville, Mich., Aug. 25. L. C. LINCOLN.

[As we have before explained, the bees should be set in the cellar when the air has a tendency toward frost; that is, just enough so that the colony is contracting toward their winter sphere. With ordinary caution, scarcely a bee will fly. As we explain in our price list and A B C book, we prefer to carry colonies into the cellar *with* bottom-boards; and when inside, lift the hive off and set it in its position.]

KEENEY METHOD OF WIRING FRAMES.

I would say that I have about 40 brood-frames of each of Keeney's method, and the horizontal method drawn taut, and have not a single perfect comb of the former, nor a single imperfect one of the latter, all on medium foundation. If drawn tight, the wire will sag enough to correspond with sag in foundation.

Bees have done fairly well this year, but the quality of honey is not up to the standard. It is dark, with some little honey-dew.

JAS. A. DIMICK.

Anderson, Ind., Aug. 26, 1891.

BEES AS FERTILIZERS.

Prof. Cook:—Please explain through GLEANINGS how bees fertilize flowers. The honey crop has been very good here. Bees are gathering honey from a bitter weed. I will send you a sample. JOE SMYLIE.

Wilson, Miss., Aug. 20.

Each flower of most plants bears stamens and pistils, or male and female organs. The stamens bear the pollen, or fertilizing element, which must reach the pistil and pass to the ova, or seeds, else they will fail to produce. In many cases the stamens are on one tree, and the pistils on another, as in the willows. In this case, wind or insect must bear the pollen dust from the stamen to the distant pistil. Often the seeds will not develop unless the pollen from another flower, even though the flower has both stamens and pistils, is brought to fructify them. Thus we see that bees and other insects in performing this valuable service are of immense importance to vegetation. In many cases they must bring pollen from distant plants, as the male and female organs are widely separated; in other cases they must cross-fertilize, as close fertilization is impotent. Every bee-keeper knows how bees get covered with pollen, and how they bear it from flower to flower. Notice the bees at this season, August, as they visit the snapdragons. The pollen is white, and often the bees have a white line the whole length of the back where they rub against the stamens, and bear off the pollen. As they pass to another flower this pollen is rubbed off on the pistil, and passes on to the seeds. J. S. will be interested in the other article sent to GLEANINGS, on "Bees as fertilizers." See page 732.

Ag'l College, Mich. A. J. COOK.

SALT A GOOD REMEDY FOR BEE-PARALYSIS.

I notice what is said in regard to bee-paralysis and the remedy. I had one stand this summer that had it. I took one handful of salt and put it under the stand, on the platform, and in the entrance, and crowded it up against the front of the hive, and now the same bees are well. I don't see that any are being killed. Some of those bees would look black and shiny, and the other bees in the same hive would kill them. I salted every hive in the same way.

Moulton, Iowa. Sept. 28. S. S. BUCKMASTER.

THE DOVETAILED HIVE WITH HOFFMAN TOP-BARS.

I have had about a dozen of your Dovetailed hives in use this season; and to say I liked them from the start is putting it mildly. I find that they do much best with foundation wired in. It seems so nice, after using the old Simplicity frames so long, and being bothered with burr and brace combs, to watch the bees fill the frames (Hoffman), with the assurance that there would be no such nuisance to bother. But the regular white-clover flow set in, and the hives were just running over with bees, and honey coming in lively; and, didn't these little knots of combs begin to grow right before my eyes, and right up through those exact spaces between the frames where we were assured by the junior editor of GLEANINGS that the soil would not produce a growth of these noxious weeds! But they grew up through these spaces, and entirely across the top of the frames. In several hives the space between the frames was half filled with these impediments to morality.

Well, seriously, I think if you will add ¼ inch to the depth of the Hoffman frame you will have it about right for this climate.

The wedging-up process, as applied to the Dovetailed hive, is not satisfactory. It does not draw the frames close enough together to keep out propolis. But I still like the Dovetailed hive, with all its faults.

Henderson, Mo., Sept. 23. S. S. LAWING.

[The hives which you had were among the earlier lot of the season, and did not have the scant ¼-inch bee-space, as we had not at that time learned that the bee-space was one of the prime essentials in the riddance of burr-combs. Instead of making a standard frame deeper, we make our hives shallower, which accomplishes the same results. Out of our 80 colonies in the Shane yard, only one had burr-combs above the top-bar, and that over only one or two frames.]

DADANT ON SULPHURIC-ACID WAX RENDERING.

Friend Ernest:—After reading your remarks on the use of sulphuric acid, pages 703 and 714, I had about made up my mind not to reply, because I thought the arguments which I could give you against the ground you took would be of but little importance, but in reading Dr. Miller's opinion on this subject as given in his Stray Straws I find his views to agree so well with my own that I will give you what arguments I have on this point.

We find that the more beeswax is manipulated, the more it is re-melted, the more it loses its fine honey flavor, and therefore the more objectionable it is to the bee-keeper's taste, and the more readily bees will object to it. There is not a doubt in my mind concerning the healthfulness of beeswax refined by the sulphuric-acid method, and I believe that this method is advantageous to cleanse black wax or refuse, since we use it ourselves; but to use it on all grades will simply make an insipid material of the sweetly perfumed article produced by the bees. I have often heard parties wonder what sweet-scented substance was used in the manufacture of foundation, when it was only the perfume that Nature put into the blossoms that could be so plainly detected. All the secret of this was the use of clean water in rendering the combs. For this reason, I should be sorry to see any of our bee-friends use the dangerous oil of vitriol when another process much more simple will do as well. Let us teach bee-keepers to render their wax in the sun or in clean tin vessels with clean soft water, and we shall make the very best founation that can be obtained. C. P. Dadant.

Hamilton, Ill., Sept. 18.

[I believe what you say is true, that melting and re-melting does to some extent destroy the peculiar aroma that is present in virgin beeswax. Whenever visitors go down into our foundation basement, they usually exclaim, "How good it smells!" adding that the odor is suggestive of honey. In regard to the sulphuric acid, perhaps I should explain that we have tested it on only the very darkest grades of wax, and the whole amount rendered in this manner will be small compared with the sum total used in foundation-making. But we find that bee-keepers clamor more for the yellow *color* of wax than for its peculiar *odor;* so even if *all* the wax were refined by sulphuric acid (which will never be the case by a long way) it would not be objectionable to bee-keepers.

I have been making some further experiments in regard to acid testing in wax, and have finally succeeded in detecting a very, very slight trace of acid in wax rendered with sulphuric acid; but the amount is so infinitessimally small I feel sure it can do no harm; and although I do not know positively, yet I do not think it would be objectionable to bees.] E. R.

HOW I GOT EVEN WITH THE ANTS; A NOVEL PLAN.

This vicinity has a sandy soil, and, being loose and warm, it is inhabited by myriads of ants. The struggle for existence among them makes it necessary for them to prospect every nook and corner for food. They came up into the house day and night, and soon learned the way to the cupboard. No barrier would prevent them. After failing with several expedients I determined to give them a satisfactory feed. I took a large bottle and dropped into it a quarter of a teaspoonful of Paris green. To this I added a tablespoonful of alcohol to make it more soluble, and filled the bottle up with sugar syrup. Then I got a piece of a pane of glass and poured them out a meal on it, setting it in their trail on the floor. This was in the afternoon at 5 o'clock. The whole colony was awakened. They streamed in all night, passing around by the edge of the carpet, over which they would not crawl, and filled up on the deadly feast and went back again—hundreds, thousands of them, hundreds of thousands. The next day by ten o'clock not an ant was to be seen. Once since, the colonies n the rear of the house were induced to come to a festival with like results. Not one died in the house. The bottle is yet half full, waiting any further encroachments. C. H. Murray.

Elkhart, Ind., Sept. 22.

KEROSENE EMULSION AND HOP-LICE.

Mr. Root:—Do you know what would be the best to spray hop-vines with, to kill the lice? Every hop-yard in Oregon is loaded down with the louse. The growers are spraying, but it does no good. Please publish in Gleanings what you think would kill them.

Butteville, Or., July 21. Lucien Geer.

[We forwarded the above to Prof. Cook, who replies:]

The hop-louse, like all other plant-lice, can be subdued by use of kerosene emulsion. I have previously given both formulæ for this valuable insecticide in Gleanings. Those needing them may well try both, as it requires but little trouble, and use the one that works best. In making any kerosene emulsion it is necessary to agitate very violently. Simple stirring is not enough. Pumping the liquid forcibly back into itself is always effective. A one-fifteenth emulsion—that is, kerosene one-fifteenth of the whole—is always fatal to aphides, or plant-lice, and never harmful to foliage. A. J. Cook.

Agricultural College, Mich.

DIAGNOSING COLONIES; HANDLING FRAMES LESS.

I have closely read what has been said in Gleanings, especially by the large guns, and more especially the remarks that follow, either by A. I. or E. R. Root. I have taken a deep interest in the arguments over the closed-end frames, for it is with us here in the South to get the most for the very least labor possible to accomplish the best results; and the handling of hives instead of frames has been my practice since coming to Florida. My hive is a ten-frame short or crosswise Langstroth, loose bottoms, and can put on as many stories as the colony can use, so that I can nearly always, by handling the hive, tell what their wants are.

E. R. struck the key in his remarks when he used the word "diagnose." To be able to do this is the first step toward successfully handling the hives instead of frames. You must first practically learn to make a correct diagnosis of the colony, the same as a successful doctor will with his patients. The practiced eye and ear can very closely tell what bees need by their looks and movements at the entrance, and by the hum of their wings. Colonies in want of stores are smaller, have a pinched and drawn-up look, restless in their movements, and often give off the hum of distress, similar to a colony with no queen. First learn to diagnose your hives (*bees* would be the word), and then you can save a vast amount of labor; then you can handle hives instead of frames; still, with less labor with loose-bottom hives.

John Craycraft.

Astor Park, Fla., Sept. 26.

SNEEZEWEED HONEY, AGAIN.

F. H. French, Florence, Ala., sends me some flowers of the sneezeweed, *Helenium tenuifoli-*

um, from which he says his bees have gathered much honey and pollen for the whole of August. The honey, he says, is of a beautiful golden color, but is so bitter that it is unfit for table use. He says it was brought from Texas by a physician because of its medicinal qualities, which, it was claimed, resemble those of quinine. The plant has spread widely, and ruins all the fall honey, except for food for the bees. Mr. French asks whether this plant is valuable for medicine.

By looking in GLEANINGS for 1890, p. 672, it will be seen that I received very much the same information and inquiry about this plant from Mr. C. P. Coffin, Pontotoc, Miss., last year. This is an introduced plant, and is naturalized all through the South. It is closely related to goldenrod, sunflowers, asters, etc., and so we need not wonder that it is a rich honey-producer. It is to be regretted that the honey is bitter. We can only advise that it be kept separate as much as possible by extracting all other at the dawn of its blossoming, and use it in winter and spring to feed the bees. That it may have decided therapeutic qualities is not improbable. To answer this, careful experiments would need to be made. A. J. COOK.

Ag'l College, Mich., Sept. 15.

STINGLESS BEES.

In *Youth's Companion* (Sept. 24, 1891) it is stated that they have stingless bees in Australia. Is that true? If so, why are they not imported into this country? E. BRUBAKER.

Philadelphia, Pa., Sept. 28.

[There are stingless bees in some parts of Africa, South America, Mexico, and, we believe, in Florida. So far as we know, they are worthless for practical use. Those we tested in our yard were about equal to bumble-bees as workers.]

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

E. T., York, Neb.:—Pouring boiling water into the extractor, and then revolving the basket, might disinfect an extractor that had been used for extracting honey from foul-brood combs. The better way would be, if you can, to cover the extractor and then turn in a jet of steam and let the steam whistle into it for half an hour. If you can not get access to steam, put in a great deal of hot water. Fill the can full of boiling water, and let it stand until the water cools.

D. P., Vicksburg, Mich.:—If your bees have built your combs crosswise, cut them out and transfer them into the frames right, as per "Transferring," in the A B C of Bee Culture. To avoid a recurrence of such, use foundation. Even narrow strips fastened to the comb-guides will answer to get the bees started right, although almost all bee-keepers prefer to use full sheets, and generally wired, at that.

F. J. S., Canaanville, Ohio:—It is too late now to try to increase your colonies. Don't attempt it until about next May, and then you can do it by dividing, as you suggest; but when you divide, be sure to put all the hatching brood into the new location, and at the same time carry two-thirds of the bees there. This will secure a nearly equal division of both, because the old bees will return to the old stand where their queen is.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

Here it is October 2d, and the beautiful weather continues. Some tomato-plants which I put out so late (on ground that was vacated) that some said they were sorry to see me wasting my time, are now ripening up beautifully. Those cucumber-vines are also yielding enormously. There has been a little frost on the creek bottom, but none at all on high ground. The market-gardener should own a hill as well as a valley; and where it is desirable to escape frost, his gardening should be on the highest ground. Underdrain and surface-drain so as to avoid wash. Have your furrows run horizontally instead of up and down, and you can have many things to put on the market after the frost has spoiled them for everybody else; and this, too, without sash. The hilltops are just the place for strawberries.

We dug our nice crop of Puritan potatoes with the cheap potato-digger. The principal reason why the ten-dollar digger is not as good as the hundred-dollar one is because it does not leave *all* the potatoes on the top of the ground; therefore when potatoes are worth any thing like a dollar a bushel, your ground should be cultivated after digging, and have some boys pick up the potatoes. We did the cultivating with our two-horse cultivator, and the boys picked up about twelve bushels more from a piece that had given us something like 200 bushels. You can see from this whether you want a cheap potato-digger or not. After the cultivator had gone over the ground it was in beautiful shape to fit for rye; but as the ground is comparatively new, and has never had much manure, we gave it a heavy dressing, say 25 loads to the acre, right over this cultivated surface, and we are plowing it now. The ground is so hard that, ordinarily, it would be impossible to plow it; but this ground has been made so mellow in cultivating potatoes, and later in digging them, that it plows up splendidly, providing we do not run the plow too deep. This reminds me of an experiment we made in order to test the value of rye. Last winter a strip of rye a few rods wide ran right through where our potato-field is now. The rye was put in in September, and in the spring it had made such a beautiful mass of feed that we commenced giving it to the cow. By the time we had got it all off once, where we first cut it it was ready to give another cutting. About this time we plowed it up for potatoes. As we cut such a quantity of green feed from the strip, I did not suppose the stubble would be of any advantage to the ground. To my surprise, however, the potatoes all along during their growth looked much finer over the rye strip; and the yield this fall showed a marked difference in favor of the place where the rye stubble was plowed under. A part of this stubble, however, was green and growing, as I explained. Somehow or other I always find a specially keen enjoyment in making garden and in sowing seeds in October. The cool nights and mornings act as a tonic, and give me enthusiasm. We have some rye that is now three or four inches high; some more just coming up, and the piece I have mentioned, where we have just been getting ready to put in the seed. The sight of the beautiful rank thrifty rye and spinach, when every thing else is exhibiting only death and decay, gives to me a special enjoyment. Owing to the unusually warm fall, one lot of spinach has got too large and has run up to seed. There is usually no sale for it until frost comes, because so many other things are on the market.

On this account it is well to make frequent sowings of spinach, lettuce, etc. One lot of lettuce that I had planted for Thanksgiving has already commenced shooting up to seed. Never mind; we have sold enough of it at 5 cts. per lb. to pay the cost of the crop.

MYSELF AND MY NEIGHBORS.

He that loveth not his brother whom he hath seen, how can he love God whom he hath not seen ? — I. John 4:20.

A few days ago the text above suddenly burst upon me. I was pretty sure it was in the Bible somewhere, but I did not know where. I thought first it sounded like James. But we finally found it as above. When it first came to me, my impression was that it read *neighbor* instead of *brother*—"He that loveth not his neighbor whom he *hath* seen, how can he love God whom he hath *not* seen?" Well, shall we make any mistake if we read it *neighbor?* I think not. John may mean brother in the church or a brother-Christian. But we are admonished by the Savior not only to love our neighbors as ourselves, but to love even our enemies. In the prayer-meeting and at church, in considering the matter we say, "Well, I do love my neighbor;" but when we come to week-days and to week-day tasks and duties, do our actions surely indicate that we have that constant and *abiding* love? Do we not often become discouraged, and say, "Well, I declare! I do not believe there is any use in trying. I really *can't* love that man"? But, hold on, my friend. Your next step will be to say you can not love God. This epistle of John is a very kind, loving, and gentle one. We can imagine John as an old gray-headed man. In the second chapter he commences with the expression, "My little children." In the third chapter he also uses the expression, "my little children;" and his talk is almost constantly about love; yet in the very verse from which I have chosen my text, John uses some fearfully strong language. Why, it almost makes me shudder to read it. When I hear the word "liar" used by people who are talking, it almost always gives me a start; and when some one calls another, with whom he is talking, a *liar*, it sends a chill, as if I had heard an oath uttered; but John uses the word liar right in connection with our text. In fact, the verse commences with the sentence, "If a man say, I love God, and hateth his brother, he is a liar." Oh! let us beware when Satan so gets into our hearts that we begin to feel hatred. Let us remember what John says. We are really uttering *lies* when we pretend or profess to love God, and are at the same time conscious of cherishing in our hearts hatred toward a brother.

In these days of anarchy and various organizations whose leaders (if not followers) utter fierce, hard, uncharitable speeches toward their fellow-men, how quickly we see hatred toward God follow along in the footsteps of hatred toward humanity! Somebody says there is no such *thing* as fairness in this world; and if he cherishes this thought, and associates with a class who think they are misused, and do not have a fair chance, very soon comes the charge that God has *not* created all men free and equal. Some of you may feel inclined to dispute the matter, even now. Please bear in mind, my friend, that one of the first things in the Declaration of Independence, on which our system of government was founded, is this statement; and love and obedience toward God follows as a matter of course, immediately afterward. I can not take space, however, at present, to go into the affairs of government. I am dealing with Our Homes and Our Neighbors; and I am pleading with you to have more love, more faith, more confidence, in neighbors you find wherever you are. There *is*, of course, such a thing as having a foolish, unwarranted confidence in your neighbors; but we so seldom meet with this, compared with the grievous troubles resulting from a lack of confidence, that I am sure I am safe in dwelling continually on the latter. Yes, I feel sure I shall make no mistake if my *whole life* be spent in encouraging that virtue that "suffereth long and is kind," and that "thinketh no evil." Some lessons I learned in my recent sickness are yet vividly before me. Most of us are given to falling into notions. How much has been said about bee-keepers getting into ruts, or getting into notions, and sticking to them in spite of reason or remonstrance from friends! Now, inasmuch as Satan is watching to entrap us, even during the delirium of fever, he is also watching for a chance to mislead us through this same matter of notions. He is ever prompt and active to suggest that such and such a neighbor is a "rascal;" and, if it is possible, he will encourage this feeling until we fail to listen to reason or to good sense. Oh do beware, dear friend, that he does not entrap you in this way. When he begins to whisper that *nobody* is any thing but a downright rascal, spring up at once and turn upon him with "Get thee behind me."

For many years I have had a "notion" that my lungs were weak, and that probably I should go into consumption before a great while; and I have had another notion that I was laboring under partial paralysis that I should likely never get over. And during long years it has never occurred to me that *Satan* had more or less to do with these notions. I wish to mention this, because I think that some of you may have been tempted in a similar way. While I advise you to have faith in your family physician, I do not by any means advise you to run for him every time you feel bad. Well, while under the doctor's care I asked him about my lungs. He said they were all right. But I felt so sure they were not that he made an examination, and declared that my lungs were perfectly sound. In fact, he said I was remarkably sound in body in almost every way—that all my trouble resulted from overwork, and that, too, mostly of a mental kind. At a time during the fever when I did not seem to get along very fast, and at the solicitation of friends, a distinguished physician from Cleveland was called in for consultation. Our regular physician introduced him, and then told me he had not informed him in regard to my case at all. He said he wished Dr. Bennett to look me over and question me, and then make his decision. Then he laughingly suggested to me that I would have an opportunity of seeing how well "doctors" *do* "agree." You know there has been a good deal of sarcasm, and a good many insinuations to the effect that no two doctors decide alike. If some of the friends who say this should meet with the conventions of the physicians or our land, or read some of their class journals, they might think differently. Well, Dr. Bennett gave me a very thorough examination. He tested my lungs with expensive modern instruments, and decided positively that they were strong and sound in every "corner." Why, dear friends, it has been worth twenty-five dollars to me since then to feel that I have a pair of sound, capable, healthy lungs in my body. I draw great long breaths every little while, and thank God for healthy lungs. Then he went all over me—punched me and pinched me, felt of the different organs of my body, and declared me physically sound in every way, with the exception, of course, of the malarial fever and the nervous condition of my system. He said that what I have called paralysis of my right side was simply nervousness brought on by too much mental work. As yet there was no organic derangement *anywhere;* but he cautioned me that there soon would be if I continued to abuse the good strong body God had given me. When he spoke of my paralysis I told him I should have to tell him about the "one-sided medicine" our own physician used in helping the chills on that special side, and also in helping me out of some of my notions I had for years held on to so tenaciously. And I think, dear reader, I will tell you about it. After I awoke from that refreshing and "dreamless" sleep I told you about (after my sleepless night of suffering) the doctor came in, shaking vigorously in his hands a bottle of labeled whisky. Said I, "Surely, doctor, you are not going to give me whisky, are you?"

He knew all about my feelings in regard to alcohol, opium, and such like dangerous (dangerous to both body and soul) drugs; and, during my whole sickness, he has not prescribed any thing of the sort. In reply to my question he said, "Why, this is the 'one-sided medicine' I told you I would bring."

"But, doctor, have I got to *take it?*"

With a characteristic twinkle in his eye he replied, "No, *Mrs. Root* must take it."

Now, I am a firm believer, as you may all know, in the doctrine that man and wife are one; yet in all of the triumphs that medicine has made, even in recent times, I had never before heard that a sick man might be cured by giving the medicine to his wife, even though the twain *are* one. In answer to my perplexity he replied, "This one-sided medicine is simply whisky and cayenne pepper. Your wife is to take it, as I said, but she takes it and bathes your defective side when the chills come on. I told you some time ago that the paralysis that you worried about was little more than skin deep—that there was no derangement at all except an affection of the nerves that lie near the surface. You are beginning to have considerable faith in medicine, and now see the demonstration of what I have been trying to convince you of."

Well, the chills came on before long, and my wife applied the medicine, rubbing it in briskly, as the doctor directed. Sure enough, the chilly side was fully as warm as the other, and may be a little more so. I remember of dreaming, during the fever, that my wife had put that cold right foot into a stocking made of red-pepper pods. It was a glossy bright red, but it made my right foot very warm and comfortable. A good many years ago a patient whose fever had just left him was in such a feeble state that he was fast sinking. This same doctor advised getting up a circulation by rubbing briskly with cayenne pepper and whisky. For a time the patient seemed to pay no attention to it, and some of the friends found a good deal of fault because he thus disturbed the last moments of a dying man. Pretty soon, however, the patient began to scold because the rubbing made his flesh smart. The operators began to look inquiringly at the doctor; but he was smiling, and told them to go on. Said he, "If you can get him to feel the pepper you will start a circulation and he will live." And he *did* live. Now, the point I wish to make here is, that you should have confidence in your friends and in your family physician—enough confidence to put aside your *notions*, and be guided by his knowledge and skill.

Pardon me if I dwell considerably on the adjuncts of the sick-room. I think that perhaps some of my suggestions may help others as I have been helped. When I began to mend I was impatient to get out of doors, and especially to get over to the office and see to the folks. The doctor had cautioned me repeatedly. He had not, however, said just when I might go over to the factory and when I must not. One beautiful day, when I was feeling pretty strong I ventured cautiously out on the street. After sitting down a good many times I reached the factory. Then I went back home and lay down. Of course, they were all worrying about me; but I was so certain that it would do me no harm I made another trip after a while. Very cautiously I climbed the stairs that lead to the office. My slippers made no noise, and I was nearly in the center of the room where a dozen were at work, before any one noticed me at all. The roomful of clerks were so intent, each on his or her own business, that not one of them noticed my presence. Have you ever heard of unkind speeches about the way "hands" behave when the "boss" is away? And yet, after several weeks' absence, here each one was working so industriously and faithfully—so intent on the real work before him—that I stood some little time unobserved. During that time a prayer of thanksgiving went up from my heart for these faithful friends who were all doing their work so well in their employer's absence. Finally the young lady who opens the mail raised her eyes and uttered an exclamation of surprise. They gathered around me and shook hands, and then commenced scolding me, and telling me to go "*straight back home.*" I asked them if that was the way they *always* treated their company. Well, before the day was over I had been to the factory *four* times and upstairs *twice*. The last time I started out, Ernest was so vehement that I did not know but he would take me by the collar and march me back home. He is usually so mild, and especially so deferential to his father, that it was really a "big joke" to me to see the tables turned—myself the child (in fact, I felt weak enough to be a child, certainly) and he the father or guardian. I insisted, however, all the while, that I knew what I was about; that I was not suffering in the least; that I was not imprudent. When the doctor came, however, there was a general stir of the young and old Roots and their relatives, and they made such a "fuss," as I termed it, that I replied something like this:

"Look here, friends, please do be quiet, and don't go on any more. And even though I am sure you are foolish and mistaken, for the sake of peace in the family I will submit—not because I believe there is any need of it, but because of the importunities and urgent entreaties of my very best friends and relatives."

Had it not been for these urgent entreaties and expostulations I do not know how many more trips I should have made before the day was over. In fact, I think I went to sleep with the strong conviction that *I* was right and that the whole lot of them, including the *doctor*, were full of "*notions*." However, on the line of reasoning, as Paul put it, "If meat make my brother to offend, I will eat no flesh," I submitted to them. Do you guess the outcome? Why, next morning my legs ached in a way I had not known since my childhood days when I used to have what they told me were "growing pains" in my legs. It laid me up and set me back a full week; and although several weeks have passed, I fear I have not got over it *yet*. Love to your neighbor or to your brother includes also a faithful attention to, and at least a consideration of, his honest convictions; and when a lot of brothers, or neighbors, if you choose, are unitedly against you, the chances are that they are right and you are wrong. If you are wise you will put aside your own convictions, and listen to them, especially those who are your best friends. There *may be*, it is true, circumstances when a man is justified in going against the advice and counsel of his friends and relatives; but in the present existing condition of things I think these circumstances are very rare.

God seems to have so constituted us that one can not safely live alone. The Robinson Crusoe idea does very well for a romance or a story, but it is not practical. He who becomes misanthropic, and declares he is going to stay by himself, and ask no odds of anybody, is in a dangerous position. This matter has come up in our bee-conventions. The bee-keeper who stays at home, and does not meet with his fellow-men, suffers. No one's education can be complete until he has got out of school and school ruts, and has been knocked about through the busy world. Contact with our fellow-men should soften us and make us better. The man who flies into a passion, and uses strong words, is the one who in one sense is ignorant. The active business of the world makes us familiar to some extent with humanity as it averages; and one who is wise, especially if he is wise in the Bible sense, is slow to anger. He stands cool and unmoved, even though he be misunderstood and abused; and with his heart full of love to God and love to men, as in the language of our text, he can *love* the sinner while he *hates* the sins. He is oftentimes obliged to admit that a certain state of affairs is bad; he often feels that something should be done, and that speedily. But then comes the question, "What is the wisest way to remedy the matter?" Yes, as we Yankees put it, "What is the cheapest way to remedy the present existing state of affairs in many directions?" The wisest and cheapest way is, first, to *love the sinner*, and then "go for him." Don't let him keep on in his evil way, but wait for a good fitting opportunity, and then try the effect of good neighborly counsel and neighborly exhortation. He may be getting into a *rut*, just as you and I get into ruts. If *one* of you can not pull him out, get three or four good Christians, and take hold of him unitedly. Oh, if this were only done more frequently, how many *bad* lives might be made *beautiful* ones! As professing Christians we *must* love God. But our text tells us in the plainest terms, that we can not love God until we *first* love our brothers, or, if you choose, until we first love our *neighbors*. Dear brother or sister, how is it with you as these words meet you to-day? Can you honestly say, before God, that you have in your heart love for your neighbors and for the brothers and sisters whom God has seen fit to place round about you?

TOBACCO COLUMN.

Send Mr. Dick Emley one smoker free. He has quit tobacco. He has two nice stands of bees, and will pay if he uses the weed again.
Eupora, Miss., Aug. 14. W. B. ENOCHT.

I have quit the use of tobacco after using it 12 years. I have not used any for 20 months. and no more of it for me; and if I am entitled to a smoker, please send me one.
Ben Franklin, Tex., July 18. T. J. GROSS.

Charley Ellis has quit the use of tobacco, and wishes you to send him a smoker. If he ever uses the vile stuff again, and he does not pay for the smoker I will, as it was through my influence he quit. He has not used any for about three months. N. A. E. ELLIS.
Rail, Mo., Aug. 7.

I am 29 years old the 21st of this month, and I concluded to stop using tobacco in every shape and form; and if I ever commence again I will pay twice the worth of one smoker.
CALVIN D. CHELLIS.
Brookville, Ohio, Aug. 14.

Please send a smoker to E. T. Judson, Richmond, Vt. He has quit using tobacco after using it for years. If he ever uses it again I will see that you have your pay.
J. D. WRIGHT.
South Starksboro, Vt., Aug. 12.

If you are still sending out smokers, please send one to H. O. Sluytes. He has quit smoking and chewing. If he should use it again I will pay for the smoker. He is sixty years of age. W. E. SMITH.
Randall, Kan., July 13.

In answer to your communication of Aug. 25, I would say that Fred H. Jewhurst is my only son, and has been induced to give up smoking cigarettes through reading your Tobacco Column; and if he resumes, he or I will pay for the smoker. MRS. B. JEWHURST.
Richmond, Va., Aug. 31.

I still claim that smoker from you. I quit smoking pipes and cigars about ten months ago, and I never stooped so low as to chew or snuff. I have also quit raising the weed. The reason I wanted the smoker was to remind me of my pledge. J. W. SWITZER.
Bucklin, Mo., Aug. 27.

I have, through the influence of the Tobacco Column, induced Mr. Freddie De Witt to stop the use of tobacco. He agrees to pay you for a smoker if he ever uses tobacco again. Please send me a smoker for him; and if he ever breaks his pledge I will send you 70c cash.
MATTHEW H. DEWITT.
Sunny Side, Md., July 15.

I believe I shall have to lay in a claim for a smoker, as I have thrown away my pipe and tobacco, and I need something else to raise a smoke with. I will agree to pay for the same if I ever take up the pipe; but I don't think I shall ever use the weed again.
JOSEPH W. BELL.
Valle Vista, Cal., Sept. 1.

I must tell you that I have quit the use of tobacco, but I do not claim a smoker, as I am supplied. You remember the man from Texas who said if you would give him a smoker of gold studded with diamonds he would not give up tobacco. Your reply to him caused me to wonder if I could not quit. I was a great slave to tobacco, chewing and smoking; but by God's help I have not taken a chew nor a smoke since the evening I read the article referred to in GLEANINGS, which was the 6th of last March. I had a terrible struggle, but came out victor. If all would give up the use of tobacco, and give to God's cause the amount each year they had been spending for tobacco, the cause would not suffer for want of means. I hope God may spare your life many years yet, and that you may be instrumental in doing much good.
H. C. HEDGES.
Lumbersport, W. Va., Sept. 2.

GLEANINGS IN BEE CULTURE
Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
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I know, O Lord, that thy judgments are right, and that thou in faithfulness hast afflicted me.—PSALM 119: 75.

How about those bees? Have they been united and fed?

THE very warm weather spoken of in our last issue lasted until the morning of Oct. 5. We are having at this date (12th) a beautiful October frost.

REPORTS are beginning to come in, showing that salt is a good remedy for curing the bee-paralysis (nameless bee-disease). We have not yet had a case in our yard since the salt was suggested to us; but that the fact may be established in the mouths of many witnesses, we should be glad to have many more reports from those who have tried it. The remedy is so simple, and so easy of application, that, if there is any virtue in it, we do not want to pass it by.

DR. MILLER says he will be at the Albany convention of the N. A. B. K. A. Good! If we can have him and that other doctor, A. B. Mason, present, there will be no lack of fun and enthusiasm. How is it, Dr. Mason? If you *expect* to be present, the fact should be known in advance, to help "draw," you know. By the way, Dr. Miller wants to know whether we will be present at the Illinois State convention at Chicago. We are inclined to say we will. We will try to go, any way.

WE have just been advised of the safe arrival of a select tested queen by H. L. Jones, Goodna, Queensland, Australia. It begins to look now as though the mailing of queens to Australia and to the distant islands of the sea had not only passed beyond the point of possibility, but had entered the realm of practicability. Our success has been such during the past summer that we mailed to-day a dozen queens to different parties in Australia. The air, when we put them up, was quite cool, and no bees were flying. We are afraid we may not have as good results with this lot; for if the present cool weather continues, the bees will have a week of cool weather overland through the United States before they will get to a warmer climate. However, we await the result. In about three months from now we shall be able to notify our readers of the results. Oh, yes! G. M. Doolittle sends two queens to Australia in our cages.

ONE of our customers expresses a fear that the green wire cloth that is used in shipping-boxes would be poisonous to bees, and therefore dangerous. We have used this green wire cloth for years; and while we know there is arsenic in Paris green, we do not think it has ever done any harm. By looking on our books we find that, out of 363 nuclei that we sent out from May 1 till Sept. 15, current year, we had to replace only two; and out of these, one was misdirected, and was some two or three weeks in arriving at its destination, and the bees starved. The other one was broken open in transit through the express company, and the bees escaped. All the rest of the 361 were reported to have arrived in excellent condition. Almost every customer wrote that scarcely a bee was dead. When the fact is known that every one of these nuclei was screened with *green* wire cloth, it would seem conclusive that there is no danger from its use. In our *queen*-cages we use *black* cloth, not because the other may be poisonous, but because we can see the queens easier.

QUITE frequently we receive articles, machines, devices, and what not, by express, sent from all parts of the country, without the sender first writing us to ascertain whether such articles would be acceptable. While we appreciate the kind motive on the part of our friends in sending us these things with a desire to contribute toward the advancement of apiculture, it will save them and us a good deal in the way of express charges, besides some disappointment, if they will first describe the articles they wish to send to us. We can then write them whether we should be glad to see the articles themselves or not. We have a repository, or sort of museum, where these traps are kept, and this repository is now filled to overflowing. The result is, we have a good many traps on our hands that we hardly know what to do with. We hesitate about destroying them, because the owners have given us no orders for their disposition. We do not wish to discourage in the least any worthy efforts in the line of improvements; but if you will write us, telling us what you have, we can tell you very soon whether the thing has been antedated, is useful, or otherwise; and if valuable, whether we want it sent, and whether by express or freight.

CLOSE-FITTING FRAMES IN A DEEP HIVE, AGAIN.

WE see we are misunderstood again in regard to the impracticability of the closed-end close-fitting frame in a deep hive. One correspondent in the *Review* can not see how E. R. can argue that a deep frame of this description will work more with hitches than the shallow one. We will explain. In *practice* you will scarcely ever find a frame of any description that is *perfectly* square—that is, it will have a tendency to be diamond-shaped. The deeper the frame, its other dimension being in proportion, the further will the diagonally opposite corners project from the true square of the frame. Let us take an illustration: A frame, for instance, a foot square, is a little diamond-shaped. Placing the same on the side of a steel square you will find, for instance, that it is an "eighth out." Suppose we reduce this frame to one inch square, the angles of variation being just exactly the same as those of the larger square. Now place this inside of the steel square, and the departure from the true rectangle will be imperceptible. Again, suppose our friend measure a good many of the L. hives in use; he will find that the length inside near the top of the hive won't always tally with the length near the bottom-board. Now, then, taking into consideration that frames in practice are not absolutely square, that hives are not always square if there is only an eighth-inch end play in close-fitting frames, you can see that the diagonally opposite corners are pretty apt to hit at the top or bottom; and the effect of withdrawing them is the hitch that I spoke of. Perhaps we have been misunderstood; but if the Heddon *shallow* frames and the shallow Heddon hive are made as Mr. Hutchinson described on page 699 we do not think there would be any trouble from hitching. This is substantially what we said at the time. But let the depth of the hive be increased 10 or 12 inches, and there would be. This is not theory, friend Taylor, but actual practice and observation on a number of hives. But, Mr. Heddon, we understand, is selling a deep hive with close-fitting frames, and he says they are a working success. We could not understand how that could be till we learned that he leaves the *bottom*-bars out of those deep and close-fitting frames. There is the secret, and we agree with him when the frames are made thus. To what we had reference was a deep and close-fitting frame, with both top and *bottom* bars. There, don't you see when we get our heads together we pretty nearly agree after all ?

COMMENCING MY TRAVELS.

Just a week ago, Oct. 7, I commenced by making a small trip first; and I enjoyed the rare pleasure of looking over the farms of friends Chamberlain and Terry. I tell you it was a pleasure, and I learned lots of things that I propose telling you about in our next issue. What a lot of interesting things and interesting people there are in this world, to be sure! I am just aching to tell you some of the things now; but the forms are almost full, and I shall have to put it in the Garden Department for Nov. 1.

HIGH PRICES.

Somebody said this morning that eggs were worth 25 cents a dozen; and I not only *said* I was glad, but I *felt* glad. The usual price for eggs in our locality is about a cent apiece. When they are scarce they sell for 15 cents, rarely 18. I always feel glad when prices advance on rural products, and it does not make any difference whether I am buyer or producer —at least I hope it does not. My wife remarked that, at 25 cents a dozen, she was sure she could make a living raising eggs; and I replied that, as poultry-keeping was the hobby of my childhood, I thought that "we two" might go into the chicken business in our old age. One reason why I rejoice in good prices for those who work in the open air is because the tendency is, at the present time, so great for everybody to push into the towns and cities. A young man told me yesterday that I had men in my employ who own *good farms*. They had left their farms and come to *town* to work for *14 cents an hour*. Dear me! what a state of affairs! By the way, did it ever occur to you that there are but few lines of business in the world where you get cash returns not only every *Saturday* night, but *every* night? The expert egg-producer can have something that will sell for cash the first day he commences business; and if he is faithful, and knows how, he will have something to sell at the close of every day, winter and summer; and this something just now brings 25 cts. a dozen.

THE PUNIC BEES.

Since I am able to be around and look after business, my attention has been called to the Punic bees; and Ernest greatly astonished me by the information that we had two queens in the apiary, and young bees hatched out. I have just been to look at them. The oldest are only about a week old. If nobody had told me that they were Punics I should have unhesitatingly declared that they were ordinary black bees. Very likely they are a little smaller than most strains of blacks, but in no respect can I discover at present writing that they are any different. I suppose that most of our readers have heard the wonderful things claimed for these bees. First, they won't sting; but our bees, a week old, put out their stings when picked up by the wings, just like any bees, rather more than the Italians; and they certainly run about on the combs, and act frightened, much more than the Italians. Of course, we can not yet say in regard to their flying when it is too cold for other bees to be outdoors. The queens are certainly very prolific. No doubt they shake off readily, as has been claimed. And now a word of caution: Many of our older readers—perhaps most of them—have had some experience with Cyprians, Holy-Lands, Carniolans, etc. When our friend Jones told us of the peculiar traits of these new bees the whole bee-world became enthusiastic. Some of the traits were so wonderful that it seemed to me an utter impossibility that time would demonstrate that they were no better than the Italians. At present writing, however, they have, in most cases, been dropped; and, with some of our veterans, the Italians have been dropped also—or at least partially dropped.

THE RURAL NEW-YORKER.

During my convalescence I took hold of a great heap of agricultural papers that had been accumulating for months—some of them for years. I had been telling my wife that she must not sell them for paper-rags, because *some time* I was going to overhaul them thoroughly. Before long I selected three or four periodicals from among our many agricultural exchanges; and since reading them thoroughly I have felt as though I must say a word in their praise. Prominently among these select ones is the *Rural New-Yorker*. 1. The fact shines from every page that the paper "loves righteousness and hates iniquity." 2. Its editors seem to be leaving no stone unturned in their efforts to get out the latest developments in "high-pressure farming." 3. They are equally in dead earnest in striving to educate the farmer so that he may know his real friends from his enemies. They are constantly interviewing the best and wisest men of the present day on all these great social topics that come up before us. 4. They are expending an amount of money in fully illustrating and describing every thing pertaining to rural industries, that has before been almost unheard of. 5. Every new thing that comes out in our seed catalogues or anywhere else is at once promptly tested and tried by some of their people. 6. And this follows as a natural sequence of the last: They are exposing, without fear or favor, every thing approaching the character of a fraud. I might say more, but I guess the above is enough. I believe they deserve it, any way. The price of the *Rural* is $2.00. It can not very well be less, with the amount of money and hard work they expend on it, especially as it is a weekly paper. When you are subscribing for Gleanings, if you will send us $1.25 more, making $2.25 in all, we will send you both journals one year. The above includes their free seed distribution. I hardly need tell you that the seeds sent out by the *Rural* are none of the old and discarded novelties.

A PROSPECTIVE RAID AMONG THE BEE-KEEPERS OF THE GREAT WEST AND THE PACIFIC STATES.

Among the other pleasant surprises that have come to me lately was an invitation from Prof. Cook, his wife and family, to join them in a trip to the Pacific States, where they expect to spend the winter. Our boys have told you that the doctor has prescribed three months' traveling, among his other bad doses. You may wonder why I say "bad doses." Well, the prospect of such a trip with such companions has *certainly* nothing *un*inviting about it; but when I think of leaving things here, and the good friends, to get along the best way they can in bearing the burdens and cares of the business while I go off on a "playspell," it makes me feel guilty. As they urge it, however, and as I am frequently reminded that I am hardly well on my feet yet, I have decided to go, Providence permitting. Just think of it, friends—going through these wonderful scenes once more, with such a traveling companion as Prof. Cook! I have already warned him that it may not be much recreation or rest for *himself*, for I shall ask him so many questions, and may prove more tiresome than his whole class of pupils. However, he has decided to take the chances, and just now startles me again by suggesting that we ask the people to work up or pre-arrange some bee-keepers' conventions at different points where we stop. Here is a little extract from his last letter:

Dear Mr. Root:—We arrive at Salt Lake, Dec. 3; convention at Salt Lake, Dec. 3 and 4; or if for only one day, Dec. 4th. Leave Salt Lake, Dec. 5; arrive at Reno, Nevada, Dec. 6; leave Reno, Dec. 8; arrive at Colfax, Dec. 8; stay two days; leave Colfax Dec. 11; arrive at Sacramento Dec. 11; call a convention for Sacramento, December 16 and 17. Do you like this? Can't you arrange for the meetings at Salt Lake, Utah, convention, Dec. 3 and 4, and Sacramento Dec. 16 and 17? We go to Los Angeles Dec. 24. Why not arrange for a convention at Los Angeles about Jan. 6 and 7? It will be very pleasant to meet the men, and they will be glad, I think.

You please look after the conventions. I think a note in GLEANINGS, saying that we shall be in the places such dates would secure the meetings if suggested. A. J. COOK.

Ag'l College, Mich., Oct. 10.

Now, then, good friends, at or in the vicinity of Salt Lake, Sacramento, or Los Angeles, please set to work at once and have the thing worked up; secure a hall; make the announcements in your local papers, etc.; and, take my word for it, if you are obliged to travel a good many miles to see and hear such a man as Prof. Cook you will not regret it. Not only may the State of Michigan be proud of having such a man in her midst, but well may the whole United States thank God that we have Prof. Cook among us to lead us and to direct us, and to teach us faith, hope, and charity. Yes, let not only bee-keepers come, but anybody else who is interested in the growing of crops, or in solving the great social problems of the present day. I do not know as yet what Prof. Cook proposes to do with the rest of his time while he is visiting the Pacific States; but I do know that it will be worth your while, all of you, to arrange so as to be near where he is as often as you can.

SPECIAL NOTICES.

On account of uniting, we have some three or four dozen of nice young untested queens which we will dispose of as long as they last, at September prices; viz., 75 cts. each. Speak quick if you want these queens.

REMNANT PIECES OF PINE.

We have now a considerable lot of these accumulating; size, 11 inches long, 2¾ wide, and ¼ inch thick, planed one side. Price 25 cts. per 100, or $2.00 per 1000. If you have any use for such pieces, keep it in mind when you are ordering other goods—that is, if you don't need enough of them for freight orders. The side that is unplaned is quite smooth, as it is sawed with a very fine saw.

MAPLE SUGAR AND SYRUP.

Notwithstanding the cheapness of ordinary sugars it does not affect very much the demand for honey and the products of the maple. These sweets have a flavor peculiar to themselves which secures for them a ready market at prices considerably above ordinary sweets. We are prepared to furnish choice maple syrup in almost any quantity, put up in gallon cans, at $1.10 per single gallon; $10.00 for 10 gallons. We have a limited supply of maple sugar at 7, 8, and 9 cents per lb. in small lots; ½ cent less in 50-lb. lots, or 1 cent less in barrel lots of about 300 lbs.

CHOICE COMB AND EXTRACTED HONEY.

We shall be pleased to hear from those not too far distant, having choice honey to sell, either comb or extracted. The fact of our having disposed of five carloads of honey last season has given us quite a prestige in the market, and we are having a good many inquiries and a nice trade, and we are often able to place a lot of honey, shipping direct from the producer to our customer, thus saving freight charges and risk in handling. In writing us, tell us how much you have to sell, whether comb or extracted—how it is put up, the quality, and, if extracted, send sample by mail; also tell how much you will take for it.

EARLY-ORDER DISCOUNT.

We desire to remind all you forehanded people who take advantage of early-order discounts, that the time is rapidly growing shorter when we allow the largest discount. Only a little over a month remains in which to secure the 5 per cent we allow on orders sent for goods for next season's use. On Dec. 1st the discount drops to 4 per cent, as you will see by referring to page 4 of our price list, where you will also find the limit of the goods to which the discount applies. I believe the number is increasing each year, of those who take advantage of this discount; and those who try the plan once, usually continue to do so, for they learn the great advantage of having their goods on hand to make up during the winter months, when time is plentiful; and when busy spring returns, and the bees begin to require "fixin's," they are at hand for immediate use, ready to secure the best possible results from the bees. The forehanded bee-keepers pursue this policy; but the slipshod ones wait till the last minute, when they haven't time to send for the best-made goods without incurring a loss in honey or swarms, and very often have to put up with a makeshift in the way of hives and fixtures. We have heard of cases of this kind so often that we offer the advice for your good, as well as to secure a larger proportion of orders during the dull season, when we have time to give them most careful attention. Many things point to a good season next year. Anticipate your needs, and order early.

EMPIRE SAFETY BICYCLE.

The Safety-bicycle fever runs high in Medina at present. Thirty-eight wheels, of all descriptions, were counted in a recent parade, and a good many of the boys have the fever bad, but think they will wait till next season before investing, and in the meantime save up the necessary cash to purchase. Naturally the wheelmen are looking into the merits of different makes of wheels. It has been claimed that the high-priced ($135) wheels are the cheapest in the end. It has seemed to the writer, however, that, like the old high prices of sewing-machines, there is on these high-priced wheels a large margin for profit, not only to the manufacturers, but to dealers, agents, and sub-agents. Three years ago we began offering to our readers the low-priced first-class Singer sewing-machine, shown on another page. Since then we have sold 261 of these machines, and the sales are constantly increasing. Especially where one has gone into a neighborhood, it has given such satisfaction that it has advertised itself, and many more orders have come from the same locality. This shows that the claims of old-line agents, who sell at old-fashioned prices, that the machines are worthless, are not borne out by the facts, and that they are valuable machines, and a boon to many a household. During the past year the company who make these sewing-machines have begun making Safety bicycles, which are thoroughly high grade in every respect, and yet we are able to offer them at $40 to $50 less than the high-priced machines. The writer has had one now for some time, and is giving it thorough and severe testing, so as to be able to speak of its merits from experience. Most wheels are sold through State and local agents. The territory is doubtless better worked by this method; but the service comes high, and the user has to pay for it in liberal commissions, besides a large advertising account. These Empire wheels are sold on the same plan as the sewing-machines, by interesting the newspapers and merchandise dealers by offering very low prices, and thus a large expense is saved, and the user gets the chief benefit of this saving. We shall be pleased to give by mail further particulars, with illustrated circular, to those interested. J. T. C.

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

e D. A. Jones Co., Ld., Beeton, Ont.

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AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.
The oldest, largest and cheapest Weekly bee-paper

THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

FALL PLANTS HATCHING AND FALL PLANTING PAYS. Brown and white Leghorn, Plymouth Rock, and Black Minorca Eggs, $1.25 per 13. Strawberry plants, 100, $1; 1000, $3.50. Raspberry plants, 100, $1.50; 1000, $5. Illustrated circular free. GEER BROS., ST. MARYS, MO.

Please mention this paper.

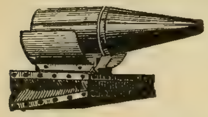
For Sale--A Kelley Duplex Feed-Mill,

No. 3; nearly new, for $25.00. Cost $75.00.

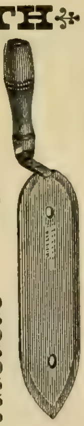
19tfdb **A. C. FASSETT, Watson, Mich.**

In writing to advertisers please mention this paper. 3-8db

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror	3	"	"	. 1.75
Large	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1.00
Little Wonder,	1¾	"	"	.. 65
Uncapping Knife.....				.... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞ In responding to this advertisement mention GLEANINGS

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "**The Western Bee-Keeper,**" and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

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FOR SALE.

13 chaff second-hand 1½-story hives complete; 1 self-inking Meriden printing-press, 4¼x7½, with 4 fonts of type, and furniture; 1 square coil 3 bends, 2 inch pipe, 10x10 inside measure.

H. W. AVIS, Matteawan, Dutchess Co., N. Y.

Bee-Hives, Sections, Etc.

BEST GOODS at LOWEST PRICES.

We make 15,000 sections per hour. Can fill orders promptly. Write for free, illustrated catalogue.

G. B. LEWIS CO., WATERTOWN, WIS.

$11.00 FOR $4.50.

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ORIGINAL $7 EDITION,

FOR 50 CENTS,

IN COMBINATION WITH THE COSMOPOLITAN MAGAZINE, $3.00, AND GLEANINGS, $1.00. IN ALL, $4.50.

Over 650,000 copies of U. S. Grant's Memoirs have been sold by subscription at the original price of $7.00 for the two volumes. We have them in our library, and no doubt many of our readers have also. Those who have not can never have a better opportunity than this. The books offered are no cheap reprint, but guaranteed to be identical in style and finish with the original subscription edition. This offer is made possible only by the enterprise of the publishers of the *Cosmopolitan*, who purchased no less than 600,000 volumes of the Memoirs with the view of greatly increasing their already large subscription list. They could not afford to do it if they did not have such confidence in the character of their magazine that they expect to keep as permanent readers most of the subscribers they will by this means secure. The illustration and printing of this monthly surpasses any other we are acquainted with, and most of the articles are on live topics of the times. The price, too, without a premium, is as low as the lowest. Remember, that for $4.50 you get this excellent magazine one year; GLEANINGS one year, and U. S. Grant's personal memoirs. At this rate the books will be sent by express at your expense; or, if you send 50 cents extra, they will be sent postpaid. If any already have Grant's Memoirs you may have instead at the same rate:

Gen. Sherman's Memoirs,	2 vols.;	retail	price	$5.00
Gen. Sheridan's "	"	"	"	6.00
Gen. McClellan's "	1 "	"	"	3.75

Postage in each case, 42, 46, and 24 cents extra. The books can not be sold separately, or extra copies for less than $4.00 in each case, and postage extra. If you are not acquainted with the *Cosmopolitan*, address them at Madison Square, New York, for a free sample copy; but address all orders for books and subscriptions to

A. I. ROOT, Medina, O.

P. S.—To new subscribers to GLEANINGS we will send from time subscription is received till Jan., 1893.

ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. W. Z. HUTCHINSON, Flint, Michigan.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. Root, Medina, O.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

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$11.00 FOR $4.50.

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ORIGINAL $7 EDITION,

FOR 50 CENTS,

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Gen. Sheridan's "	"	" "	6.00
Gen. McClellan's "	1 "	" "	3.75

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LEADING VARIETIES.

How much am I offered? Can spare a few hundred bushels. Address

J. B. MURRAY, ADA, OHIO.

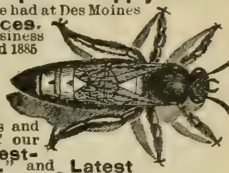
Bee-Hives, Sections, Etc.

BEST GOODS at LOWEST PRICES.

We make 15,000 sections per hour. Can fill orders promptly. Write for free, illustrated catalogue

G. B. LEWIS CO., WATERTOWN, WIS.

Western Bee-Keepers' Supply House



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JOSEPH NYSEWANDER, DES MOINES, IOWA.

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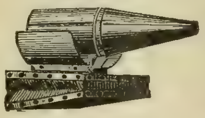
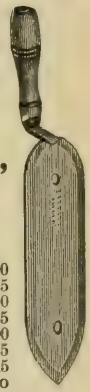
BEST ON EARTH





ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

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Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

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Send for descriptive circular and testimonials to

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SPECIAL NOTICES.

SOME NEW TOOLS.

We are carefully watching the market in tools; and when any thing comes out that is really superior to what is already in the market, we expect to be able to furnish it.

PLIERS WITH PARALLEL JAWS.

All ordinary pliers, as you may have noticed, are faulty when you come to grasp any thing with any degree of thickness, because their jaws open at an angle; and the wider they open, the more obtuse the angle, and the greater danger of slipping. Well, a new plier has been brought out with jaws that are constantly parallel. There are three sizes—50, 65, and 90 cents each respectively. The smallest size will open its jaws half an inch; the larger sizes a little more, of course. They are also a great deal stronger than the smaller size. The smallest size is 4½ inches long; the next 5½, and the largest size is 6 inches. The jaws are of the finest tempered steel, and a groove is made longitudinally in the center of each jaw, for grasping different sizes of wire. The jaws are not only parallel, but they have an immense lever purchase. If wanted by mail the postage will be respectively 5, 7, and 8 cents each.

The next thing is

TINNERS' SNIPS AT A LOW PRICE.

Did you ever borrow your wife's shears to cut a piece of tin, and spoil your tin and your shears also, and possibly spoil your wife's temper—or, if not quite that, give it a pretty severe strain? Well, there is no need of your doing so any longer, for you can get a pair of tinners' snips, made of malleable chilled iron, for only 25 cents. When I look at such a tool it seems ridiculous to offer it at such a low price. It is almost a foot long, and weighs 1 lb. 6 ounces. In fact, it is so heavy that, if you want it by mail, you will have to pay 23 cents postage on it.

A STEEL HATCHET FOR 35 CENTS.

I have been for many years watching for something really serviceable that can be furnished for less than half a dollar; and now we have it—a good steel hatchet for only 35 cents. This is too heavy to send by mail, so you will have to get it with other goods by express or freight. Who has not seen the time he would not almost give the above amount for a good hatchet to use one day? You need one in the barn, and then your wife should have a good hatchet to be her own property; and when the children get older, she should teach them how to use it without chopping their fingers or toes. Sometimes we are inclined to say that a ten-cent cast-iron hatchet is good enough for the *women*-folks. Well, it is a good deal better than no hatchet at all; but *my* wife deserves a better hatchet than a ten-cent one. How is it at your house? A few days ago I called for a hatchet in a great hurry, and was a good deal disgusted when my wife produced a cast-iron one. When I expressed my displeasure she said somebody borrowed her nice hatchet, and did not bring it back; and when she sent for it they sent *that* thing. It was just the same way with her nice kitchen saw. It was not the neighbors, dear friends—it was only some of our own men on the premises who had it, and I suppose they thought the cast-iron hatchet was the one I furnished her, and which she called her own property. Now, I am going to take a good saw and a good hatchet this very minute, and give my wife. She has worked very hard, not only while I had the fever, but she did a splendid job of house-cleaning since then. By the way, don't these women-folks of ours deserve good nice tools? May be you don't think they understand or appreciate them. But just you try giving your wife a saw or a hatchet, or even a pair of pliers. May be she would like a pair of shears to prevent the children and other folks from using her good ones. By the way, has she got the nicest pair of shears you can find in your market, and are they kept in nice cutting order? If you do not know how to put a pair of shears in nice cutting order, you ought to be ashamed of yourself. And this brings in the matter of nice little grindstones, whetstones, and oilstones. We have them all in our price list; and, by the way, have you had a new price list lately? If not, drop us a postal. You see, as I have got to feeling real well I am naturally full of business.

KIND WORDS FROM OUR CUSTOMERS.

Your Benton cages are indeed greatly improved. The Porter bee-escape is something that can not be valued enough. The old queen you sent me last fall is pure three-banded Italian, and does well yet. She made a strong colony. L. HAMMERSCHMIDT.
Amana, Ia., Aug. 17.

Please insert my name in your list of "Untested Queens." I see you insert free the first time, so I will send 20 cts. for another insertion. I think this will bring all the orders I can fill, if it works like the other ad's you gave me. They brought so many orders that I had to take queens from full colonies; but I would not keep a customer waiting if I had to do it again, for I know by sad experience what it is to wait several weeks for a queen after she is paid for. E. C. EAGLESFIELD.
Berlin, Wis., Aug. 7.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 64, 63, 63, 63, 62,
25 green	12	100	100	1.75	
5 green	24	100	200	3.50	140, 8, green; 200 black.
35 green	26	100	217	3.50	This is below reg. pr. of 1¾ c.
14 green	28	100	233	4.08	224, 224, green.
15 green	30	100	250	4.37	
11 green	36	100	300	5 25	
6 black	38	100	317	5.54	269, black; price $4.70
5 green	38	100	317	5 54	
3 black	40	100	333	5.83	
7 black	42	100	350	6 12	
15 green	30	100	250	4 37	

A. I. ROOT, Medina, Ohio.

WANTED.—To sell fifty colonies of bees. Will take $100.00 for them on the ground.
C. G. STRONG, Atoka, Tipton Co., Tenn.

Hatch Chickens by Steam.
IMPROVED EXCELSIOR INCUBATOR

Circulars free.
Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.
Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.
☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

PORTLAND.—*Honey.* There is very little Oregon honey being offered here this season. From reports there is a very short crop. There is comparatively little honey raised in Oregon anyhow. We bought one lot of very fine white honey from one party and paid him 14½c for same. We are selling California honey at 17c for white, and 15 to 16c for dark. There is very little demand here for beeswax.
LEVY, SPIEGL & CO.,
Oct. 22. Portland, Oregon.

CINCINNATI.—*Honey.*—Demand for honey is slow, owing, perhaps, to the abundance of fruit, to warm weather, or to the low price of sugar. There is a good supply of all kinds. Extracted honey brings 5@8c a lb. on arrival. Comb honey, 12@16c in the jobbing way. There is a fair demand for beeswax at 23@25c on arrival for good to choice yellow. Supply is good.
C. F. MUTH & SON,
Oct. 23. Cincinnati, O.

ALBANY.—*Honey.*—Receipts are quite large, but there is no accumulation. Stock is selling on arrival at following prices: White clover fancy 1-lb. sections, 15c; fair to good, 12@14c; mixed, 10@12c; buckwheat, 9@11c. We are unable to fill our orders for 2-lb. section buckwheat, as there are so few coming forward. Extracted selling freely at 7@8c for light, and 6@6½ for dark and mixed. *Beeswax*, 24@26c.
CHAS. MCCULLOCH & CO.,
Oct. 20. 393, 395, 397 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—Honey market is improving and looks a little healthier. Honey is quite plentiful, especially clover and basswood. Our quotations are as follows: 1-lb. fancy clover, 14@15c; fair, 12@13c; 2-lb., fancy, 12@13; fair, 11. Buckwheat, 1-lb., 10c; 2-lb,, 9. Extracted honey, clover and basswood, 6½@7; buckwheat, 5½@6. *Beeswax* firm at 26.
CHAS. ISRAEL & BROS.,
Oct. 19. New York.

KANSAS CITY.—*Honey.*—Demand good for comb and extracted; supply light. We quote: White 1-lb. comb, 15@16; dark, 10@12. Extracted, dark, 5@6; white, 7@7½. *Beeswax*, 23@26. We would advise shippers to get their honey into market before cold weather.
CLEMONS, MASON & CO.,
Oct. 20. Kansas City, Mo.

NEW YORK.—*Honey.*—Demand for comb honey has increased since the weather has become cooler, but buyers are not inclined to pay high prices. We quote: Fancy white, 1-lbs., 14@15c; fair, 12@13c. Buckwheat, 1-lbs., 10@11c. Extracted, basswood, 7@7½c; California, 7c; Southern, 65@70c per gallon. *Beeswax*, 26@27c.
F. G. STROHMEYER & CO.,
Oct. 17. New York.

KANSAS CITY.—*Honey.*—Honey demand good, with a good supply. We quote 1-lb. white comb, 15@16c; dark, 12. Extracted, white, 7@7½; dark, 5@6½. No beeswax on hand.
HAMBLIN & BEARSS,
Sept. 19. 514 Walnut St., Kansas City, Mo.

DETROIT.—*Honey*—Comb honey selling more freely at 12½@13c; supply not large. Extracted, 7@8c; stocks low. *Beeswax*, 25@26c, dull.
M. H. HUNT,
Oct. 20. Bell Branch, Mich.

CLEVELAND.—*Honey.*—Honey market continues about the same; demand fair; 16c for white comb 1-lb. sections. Dark honey slow at 11 to 13c. *Beeswax* scarce at 25@27c.
A. C. KENDEL,
Oct. 20. Cleveland, O.

ST. LOUIS.—*Honey.*—Market unchanged; demand quiet. Prime beeswax, 24c.
D. G. TUTT GRO. CO.,
Oct. 19. St. Louis, Mo.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address
11tfdb E. LOVETT, San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE.—1000 lbs. of buckwheat comb honey.
20d D. F. LASHIER, Hooper, Broome Co., N. Y.

Wants or Exchange Department.

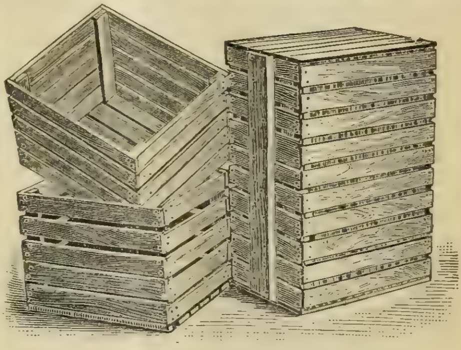
Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To exchange a good printing-press and 9 fonts type, value $14; also 6 pair prize-winning Brown Leghorns, for gun, silver watch, or offers. W. H. LAWS, Lavaca, Ark. 21-22

A COPY of South Florida Home in exchange for your name on a postal card.
Y. G. LEE, St. Petersburg, Fla.

A New POTATO-BOX Made Entirely of Slats.



This kind of box has been several times recommended, but we have not made them till now. We are having quite a trade on potato-boxes, and find difficulty in getting lumber to make the ends of one piece, so we have tried putting slats in both ends and sides as well as bottoms. The cut above shows 2 boxes nailed alongside of a package of 15, put up ready for shipment. We make them the same size as the other styles, 14¼x16⅞x12½ deep outside measure, with six slats on the bottom, five on each side and each end, and a slat up each corner. It makes a lighter and stronger box, and we can also furnish them cheaper. We put them up in packages of 15 — two nailed up and the other 13, with nails, packed inside. Weight of the package, 100 lbs., and the price $1.50, which equals 10 cts. each in full packages; 10 packages, 5 per cent off. Nailed up, 15c each. In ordering, call this the *All slatted box.*

A. I. ROOT, Medina, Ohio.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

LADIES' FINE SHOES.

PRICE ONLY $2.

Genuine Kid, Soft Soles, Elegant Style; Broad or Narrow Toe. Sizes, 2 to 8. C, D, E, and E E widths. This Shoe is sold at $3 in all retail stores.

OUR PRICE $2, POSTPAID.

FIT, STYLE, AND WEAR GUARANTEED.

NO SHODDY, BUT GOOD SHOES.

Send P. O. order, Registered Letter or Postal Note.

C. L. GRIESINGER, MEDINA, OHIO.

Reference, GLEANINGS. 18-19-20-21d

In writing advertisers please mention this paper

EARLY QUEENS.

In March and April, from apiary in Texas, the choicest 5-banded stock, warranted purely mated. One, $1.25; 6 for $6.00.

BREEDING QUEENS.

From home apiary in April or May, $3.00 to $5.00 each. All orders filled promptly. Send your name NOW for full particulars, ready in February or fore part of March. Safe arrival and *entire satisfaction guaranteed* or money refunded. Orders booked now, pay when you want the queens. 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

Please mention this paper. 1tfdb

Boxes and Shipping-Crates.

EVAPORATED APPLE-BOXES and SHIPPING-CRATES A SPECIALTY.

In this line we take the lead. If any one reading this ad. will send us the name of driers we will make it right with them. Send for prices. Address

W. D. SOPER & CO., JACKSON, MICH.

15-17-19-21d Please mention this paper.

BERRY PLANTS, Grape Vines, Fruit Trees, Small fruit plants. Large stock. Low prices. Catalogue free. **WM. STAHL, Quincy, Ill.**

MUTH'S

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-Hives
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Please mention this paper.

PRINT YOUR OWN CARDS

PRESS $3.00
Circular Size $8.00
Press for a small newspaper $44.

SAVE MONEY! Make money printing for others! Type setting easy; printed instructions. Send 2 stamps for Catalog of **Presses, Type, Cards, Paper,** &c., to the Factory.

KELSEY & CO.,
Meriden, Connecticut

Please mention GLEANINGS. 19-20-21

For Sale, Portable Engine on Wheels

8 H. P., in good repair. Will sell AT A BARGAIN if taken at once. Address

LOWRY JOHNSON, Masontown, Pa.

N. A. KNAPP, Rochester, Lorain Co., O.,

HAS FOR SALE

50 STRONG COLONIES OF PURE ITALIAN BEES, 500 WHITE AND BLACK FERRETS.

Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

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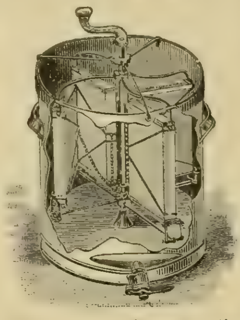


EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

BEE-HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
HIGGINSVILLE, MO.

14tfdb

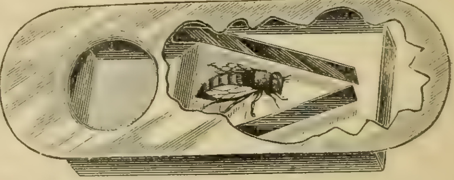
Please mention this paper.

FOR SALE—ONE H. P. ENGINE AND BOILER.

Price $25.00. Good order. 21-22d

C. J. HUBBARD, Simonsville, Windsor Co., Vt.

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**

☞ In responding to this advertisement mention GLEANINGS

A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

☞ In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XIX. NOVEMBER 1, 1891. No. 21.

STRAY STRAWS

FROM DR. C. C. MILLER.

HAD TO FEED this fall.

FINISHED HAULING home bees from out-apiaries October 12.

DID YOUR CROP bring enough money to take you to Albany?

GEO. E. HILTON says he believes in handling *hives and frames* less; "but if either must be handled, let it be the frames."

THE *British Bee Journal* is not often caught napping; but two pages in the number for Oct. 1 are filled from GLEANINGS and credited to *Review*.

GRANULATED HONEY, mixed in small quantity with liquid honey, will hasten granulation. This in reply to the question on page 815. What additional help can be given?

EIGHT-FRAME HIVES may be best for comb honey—I don't know. But the man who uses them in this region must be willing to feed, if necessary, every fall and spring.

UNCAPPING CELLS to get bees to empty honey is not as good as Cheshire's plan of striking a few times on the cappings with a wire hair-brush. The latter is quicker and easier.

"THE DRONE is sealed 16 days, and is impotent until 12 or 14 days old; he must, therefore, be sealed about 7 days before the egg to produce the queen was laid if he is to be in time for service."—*Cheshire.*

YOUR PUNICS in Medina, you say, look just like ordinary black bees. Well, mine didn't; that is, the workers that came with the queens from England. They were black—decidedly blacker than common blacks.

SAY, ERNEST, is there any more weight on the two horizontal wires in my way of wiring than if you had two horizontal wires without any perpendicular wires? Still, they're stretched tighter and might break easier.

BEES DON'T GNAW through duck or oil cloth, according to Prof. Cook and the *A. B. J.* Somehow holes get in duck or oil cloth, if placed over my bees, and it would be hard to convince me that the bees don't gnaw the holes.

VENTILATION in hauling bees is rightly insisted upon as very important. But let me whisper in your ear that I haul my bees every fall and spring with no other ventilation than the usual entrance covered with wire cloth.

AT CHICAGO we always have good conventions, and we expect this year to have the editors of *A. B. J.*, *Review*, and GLEANINGS. So we ought to have an extra good convention. Nov. 19 and 20, at Commercial Hotel, 9 A. M. Excursion rates. Come.

TELL RAMBLER we are sorry I said any thing about his *we's* and *I's*. It never entered our head, Rambler, that you'd make such a fuss about a thing of so little importance, and I give you our full permission to mix your pronouns to suit thyself.

SAY, YOU, Prof. Cook, do you think it's nice of you to keep the people of Colfax away from Albany Dec. 8, and to coax A. I. Root along with you? Never mind; we'll have Ernest there, and I always could have more fun with one of my own age.

DOUBLING UP colonies for the honey harvest results in gain, but only up to a certain point, according to Cheshire. He says, "Careful experiments seem to indicate that, after 12 lbs. of bees have been heaped together, the loss is greater than the advantage."

ANENT GOLDEN CARNIOLANS, J. A. Green, in *A. B. J.*, wants to know, if they are pure, and it *is* the natural tendency of Carniolans to turn yellow, why they don't follow out that natural tendency in their native land. Don't ask impertinent questions, Jimmie.

AT OSWEGO, Ill., I saw a swarm-catcher used by Mrs. Morrison. It is simply a large wire-cloth cage, 3x2x2 feet, open only on the under side. When a swarm starts out from a hive, and you don't want it to mix up with any thing else, just cover up hive and all, and there you are.

IN REPLY to W. L. Smith (page 821), I can not now say positively as to the character of queens raised in a hive with the old queen caged, but I have always been under the impression that they were as good, and in some cases better, than if the old queen were taken away altogether.

FRIEND ROOT (page 819) advises against feeding meal when natural pollen comes. Don't worry; the bees'll not take it then. But I'm not so sure of the wisdom of advising against it when there's old bee-bread in the combs. Doesn't it stir up the bees to breed more when they get some substitute from the *outside?*

FATHER LANGSTROTH (page 806) is ready to give to C. J. Robinson all the credit he deserves. I wish Mr. Robinson were magnanimous enough to return the compliment, instead of laboring through columns of the *American Bee-keeper* trying to belittle Mr. Langstroth, and to show that the credit so generally given him is not deserved.

DOOLITTLE'S ADVICE on page 804, about bait sections, is excellent, and I'd be sure that they are thoroughly cleaned out in the fall, by setting them outdoors and having the finishing touches put on by bees from all the hives, only taking the precaution to allow passage for one bee at a time. Often bees will fail to clean the sections thoroughly if put in a super over a hive.

Some think that a strong colony can hardly be got into an eight-frame hive. This fall I put into eight-frame hives, without any trouble, three colonies which had good queens, said queens having had free range in three to five stories. I had just as strong colonies among those that had been in eight-frame hives all summer; but, as a general rule, more combs give stronger colonies.

HAULING HOME OUT-APIARIES.

A. N. DRAPER CRITICISES SOME OF E. R.'S STATEMENTS.

Mr. E. R. Root:—I wish to protest some against your article on page 749, on handling hives more and frames less. To start with, are you not a little off in your heading? I can't see that you advocate handling hives any whatever in your article. You simply advocate Mr. Quinby's ideas of twenty years ago; viz., simply to judge from outside appearances, instead of handling frames. This you incorrectly call "handling hives more and frames less." In the second column you say, "Where fixed frames give us an advantage on the subject of handling hives more and frames less, is, that we can pick up two, three, or four frames at a time. This is especially advantageous in forming nuclei." I do the same thing with loose frames—simply slip a finger between each of the ends of the frames. Don't you think you are overdoing the thing in order to boom the fixed frame?

Turn back to page 737. Don't you think your statements look a little "fishy"? Now, 57 hives at 67 lbs. to the hive would be 3819 lbs.; add to this your weight and that of your driver, probably 300 lbs. more, and you would have 4119 lbs. net; besides, the hives were wet, and the wheels would pick up 200 or 300 lbs. more of mud. In addition to this your road was hilly, and it naturally was slippery from the recent shower on it.

You say that one of your horses was Mike. Wasn't the other old Jack? See on page 599, under the text, "A righteous man regardeth the life of his beast." Now, my Christian friend, did you actually overload that poor old heavy horse in that way? I really had a better opinion of you than that. I can't believe it. I don't believe your team could pull any such load under such circumstances. Isn't it possible that you did not have so many hives on the wagon, or else you overestimated the weight of the hives? Another thing, you state that there was no ventilation except the wire over the entrance. Now, if it has been as warm there as it has here, all of those bees would have been suffocated; or you may have had so few bees in the hives that they were all right; in which case your hives were so weak that they would hardly be worth moving. I have moved lots of bees, and I have got to move 195 hives back home very soon; but I shall wait till cooler weather. I find that from 20 to 25 hives make a load for a team. My hives are large, and there are bushels and bushels of bees in them. Now, if I should close them up as you advise I should ruin the whole outfit. A. N. Draper.

Upper Alton, Ill., Sept. 28.

[No, I think my heading was all right. When I lift off the cover and look over the tops of the frames, and diagnose its condition, without even lifting a frame, I am handling hives and not frames; or, if you choose to press the point, handling a hive-cover or a part of a hive. When I take up four frames at a time I am handling half a hive at a time. When I lift or weigh a hive to ascertain the amount of stores, I am certainly handling hives in this case, am I not? It is true, you can pick loose frames two or three at a time. I have done it myself. But you must take *two* hands, and be very careful; and if a bee stings one of your fingers, you must take the grief until you can set the frames down. I have handled four Hoffman frames of bees with one hand; i. e., can carry the same to another hive.

I did not intend to claim originality for the scheme of handling hives more and frames less. I gave credit to Mr. Quinby, Heddon, L. C. Root, Hoffman, and others (see page 713). Then, again, if you will refer to page 749 you will see that I acknowledged that the scheme I outlined was probably in use more or less by practical bee-keepers.

On page 737 I said in one place the load weighed something over a ton and a half; and in another that the hives weighed from 60 to 75 lbs. each. The first estimate was made by our teamster, and was about correct. The weight of the hives was made by one of our men who lifted off many of the hives after arriving home. After all, the team was perfectly able to pull either weight, though hereafter, thanks to you, friend Draper, I will ascertain correct figures when I speak of loads in print.

There is one thing I am certain of—there were 57 colonies on the wagon. They were counted on the wagon, and after they were carried into the apiary.

In regard to the mud, your imagination is a little vivid. The rain was furious for only a very short time; but the water, almost all of it, ran immediately away. The road was through a sandy and gravelly region, so that there was almost no mud clinging to the wheels. Yes, the other horse was Jack; but he is in pretty good spirits and health, and has been for three or four months back. Both of the horses are of the Clydesdales, of the heavy draft type, and are counted as one of the strongest teams in this county. We were two hours in making the seven miles; and as we stopped at the top of the hills, they pulled the load with ease. Remember, too, we hauled the bees at *night*, and it was quite chilly besides.

Let me now pick *you* up on a point. It sounds to me a little "fishy" when you say your hives contained bushels and bushels of bees. I agree with you that, if you were to close up such colonies on a hot day, leaving ventilation only through the entrance screen, the bees would be smothered; and I agree with you that, if you use the large Dadant hives, you would not want to get more than 20 or 25 on a load. If you will refer back to my article again, you will see that I was not talking about that kind of hives, and I did not claim that they contained bushels of bees, nor did I advise any one to put 57 such colonies on one load. Has not your disgust at fixed frames led you into some wrong impressions?]

After making the footnote above I thought it was no more than fair to submit a copy to friend Draper, as it was evident that he had misunderstood me in several places, and very possibly he might wish to make some comment. He has done so; and as he has suggested so many points that I omitted to mention before, I thought best to give place to the whole, as the controversy may bring out some facts valuable to beginners if not to the more experienced bee-keepers.

Friend Ernest:—Perhaps I was a little too fast; but moving bees is a particular hobby of mine. I at least *think* I know how it ought to be done. Had I received your letter a little sooner I should have modified my queries somewhat on page 463, *American Bee Journal*. In the first query my idea was more to poke a little fun at you than any thing else.

If I am not laboring under a false impression you have been using the "Shane apiary" for queen-rearing; consequently your colonies are not full of bees. Say! I really have got "bushels and bushels" of bees in my hives; and I borrowed the expression, "bushels and bushels," from GLEANINGS. I think it was in an article (and in the note under it) by Mr. Oliver Foster; any way, it was in an article from some one in Iowa. However, if you have any doubts about it, next summer, when I am ready to move my bees, bring your own measure and come and measure them. If I don't have the "bushels and bushels" of bees in my hives I will pay all of your expenses and $100 per day for your time coming and going. I don't even claim that I have a bushel in the best hive that I have, but that all of my hives collectively contain bushels and bushels.

Why, my Christian friend, I am not disgusted with fixed frames. Were I to begin again I would have no other kind. Still, I would have them much larger than the Simplicity. One of the greatest advantages of the closed-end frames you don't seem to appreciate; and that is in wintering and in breeding up in the spring, as the closed-end frames prevent all circulation around the edges of the frames.

I always look for the editorials over E. R., and Notes from the Home of the Honey-bees, the first thing I do when I receive GLEANINGS. I find that horses are frequently overloaded and abused all over the country. I sometimes overload them myself. I have suffocated more than one lot of bees by not giving air enough. Think what a faithful old horse receives for all of his hard work! See what kind of old musty hay lots of them receive! Lots of horses receive feed so badly spoiled that it actually gives them disease from which they never recover. I think your article would have a tendency to encourage some of your readers not only to overload their horses, but to smother some of their strong colonies of bees.

I'll admit at once that I have a very vivid imagination, and I really enjoy it at times very much. To convince you of the fact, I can imagine just how you looked and felt when it began to rain before you had your bees fastened in the hives. I can imagine how you felt after you had carried about a dozen hives around that house and ducked your head down to keep from knocking your hat off. Perhaps a limb caught in your veil and tore a hole in it. A bee might have stung you on the back of the neck, or your eye-glasses have got so much rain on them that you would have to stop frequently to wipe them. I can imagine how you looked while you were "crawling" over that fence with a hive of bees in your arms. But really I can't imagine why you did not lay the fence down out of your way. I can imagine how tired you were when you got home. I can imagine how a nice little woman sat up and waited for you, and had a nice warm supper ready for you when you got home. I might go on *ad infinitum*. I really don't know what erroneous statements I have made. I know that roads through a gravelly region do not get muddy. My imagination did not take this fact into consideration. I have now three teams hauling straw to the glass-works. We have hauled 120 loads since Sept. 1. Every load is weighed, and every wagon is weighed after it is unloaded. One who has had no experience has no idea how the weight of a wagon varies, especially in wet weather. I intend to begin to move my bees out of the bottom Saturday night. Then I shall have some more experience. I want to say right here before I close, that the very best strains of bees that I have in my apiaries are from stock received from Mr. A. I. Root. I like GLEANINGS, and every number is read through from beginning to end, and looked forward to eagerly. A. N. DRAPER.

Upper Alton, Ill., Oct. 8.

[I would say to our readers, that, although this may seem like a hard-set-to controversy, friend Draper and I are on the best of terms; and I am heartily glad that he has picked me up on a number of points, because it gives me opportunity to explain things that might possibly have been misunderstood by others. For instance, I spoke about loading 57 hives on one wagon, and having one team pull the same. Friend Draper has drawn out the fact that we used a heavy Clydesdale team, and that the roads were not muddy, but more of a gravelly nature. It was easy work for them. If some of our readers should try to imitate our example with ordinary farm horses, in muddy roads, with hives overloaded with bees, they might come to grief; but with all the facts before us, there can be no confusion. Another thing: We learn that, instead of being disgusted with fixed frames, he is an admirer of them.

Why, bless you, friend Draper, we did let the fence down to about two rails high. As there was an overspreading tree right close to the fence, we had to do some crawling over said fence. See? The second time, your imagination very nearly hit the case. You have been just there yourself, I see. I did have a nice warm supper awaiting me; and, best of all, that queen of the household did not worry herself sick for fear I had been kicked or stung to death. You see, she loves those two big horses, and had confidence that they would pull the load and bring us home safe.] E. R.□

FEEDING IN FALL.

WINTER STORES.

For the last two weeks I have had the very unpleasant task of feeding for winter stores for the bees. For four or five years I have been able to avoid this entirely; but this fall we have had to feed between twelve and fifteen pounds of sugar syrup, with a small proportion of honey in it. I do not know that I am about to give any thing new on this question; but as far as I can remember it is new to me, and it may be to others.

I thought I would try to make strong colonies, and those best able to defend their stores, do the storing in the combs. My object in this was, first, to not excite all the bees—something which I think they are especially apt to do when we commence feeding. Next I thought there would be a lesser liability to waste when ten colonies were fed 100 lbs. than if twenty were fed the same quantity. Again, the stronger colonies could do the ripening better and more quickly. Again, Italians would best defend their stores. So I put or left upper stories on some of the colonies, and fed them sufficiently to whiten out the cells in the upper-story combs; and when they ceased to take down the syrup readily I removed the feeder; and after a few days, given to ripen the syrup, I put these full combs into the upper story in hives that had no honey. I found this work very satisfactory indeed, and I would recommend it to any one from present experience. I preferred colonies having no honey to those having some, as. in the former. five empty combs can easily be removed: in the latter there is generally more or less honey scattered in every comb, as, owing to circumstances difficult to control, our feeding was very late. I had one or two bricks for every feeder, and placed them above the feeder and in an upper half-story snugly covered over. This helped to keep all warm, and they were changed morning and night.

I should like to see every one bring his favorite feeder to the convention at Albany; then I should like to see a variety of bee-keepers' supplies. As I am away off here in Canada, perhaps I may be permitted to say this without grinding an ax. I look for such a turnout of bee-keepers that I hope to be there.

Brantford, Ont. R. F. HOLTERMANN.

[I am not certain whether your plan is new or not; but that is of little consequence. There may be times when the strong colonies might be used for storing and ripening honey to advantage. Our plan is to unite and then feed, and we have always had good results, as you may know.

I do not know whether it is wise or not for supply-dealers to exhibit their wares at the North American. While I think none of us would abuse the privilege, there *might* be a few bee-keepers who think we come to convention just to advertise our goods. I know this is not true in our case. We never carry samples of our goods with us, except occasionally to exhibit some novelty. The chief end of bee-conventions is to get acquainted and compare notes.] E. R.

ITALIANS IN ITALY NOT THREE-BANDED.

SOME PRETTY STRONG ASSERTIONS.

Mr. Root:—In traveling through Ireland, Scotland, England, Belgium, Germany, and Austria, I have seen none but the old straw bee-hive and a few like our old "gums." Here in Italy they have also straw hives, but wooden boxes are the rule. Leaving Lake Como yesterday I was fortunate in reaching this place while an exposition was going on. There is a splendid exhibit of peaches, pears, apples, plums, apricots, nectarines, grapes, etc. Some lemons are eight inches long and four in diameter. The poultry display was fairly good. our "Rocks" and Wyandottes being on the list. What drew my attention the most was the bee department, which was very poor considering the advancements that have been made. The only improvement upon forty years ago consists in a few bad samples of brood foundation and queen-cages—simple wire boxes—no extractors, no sections, no dovetailed frames, no section-holders, no queen-excluders, no introducing-cages, no wax-extractors, and no surplus arrangements other than the square boxes with side glasses, such as were put over our old box hives. The two largest exhibitors were a retired Catholic priest, and a most agreeable gentleman, whose card I inclose, and of whom I shall write later. The hives that these men had were filled with bees—Italian and Egyptian.

There is an impression in the States that the Italian bee is yellow, or has two or more yellow bands. Now, I do not pretend to be over-bright, but I am a close observer when my attention and interests draw me to a thing; and I assert most emphatically that the belief has no foundation in fact whatever. I have seen Italy from end to end. In the beautiful flowers in these most beautiful gardens; on the luscious grapes in the market and stands, at work on the buckwheat, of which there is a great deal here, it is everywhere the same old friend, the brown bee. At this exposition the yellow-banded bee ought to be seen, if indigenous. As a matter of fact, among the thirty or forty colonies there is not a bee that can show more than one band. I looked at all the fly-holes for even a "sport" that could show two bands, but in vain. It stands to reason, too, that Italy, not being an island, could not have kept up, all these hundreds of years, a race of bees uncontaminated by its neighbors. Of course, there may be here, as with us, some man who has got these three or more bands by selection; but the native bee has no such marking, nor have I found a single bee-man of the twenty or thirty talked with who knows even of their existence.

All the boxes here are poorly constructed, and the frames heavy and badly put together. The boxes hold 14 frames suspended on wooden rabbets, the frames being 12 inches long and 8 deep, and are nailed together. The honey in Italy is amber-colored. and not to be compared to our clover and linden clear grades. The "idleweis" white honey is a delusion unless the Swiss and Italian-Alpine people catch some before the buckwheat blooms, which is both an early and late crop here, and meets the eye in every direction. We all know what color it imparts. Honey is more commonly used here than with us. On every breakfast table is found the dish of liquid honey. At Carlsbad, Hamburg, and Baden-Baden, when people are put upon a health diet, there is nothing on the breakfast table but a small cup of coffee, one roll (no butter), and a little dish of clear honey.

I should have about 1000 lbs. of comb honey (sections) if our Maryland crop has been good, and am anxious to get home and see what my little workers have done.

ARTHUR T. GOLDSBOROUGH.

Palanza, Lake Maggiore, Italy, Sept. 12.

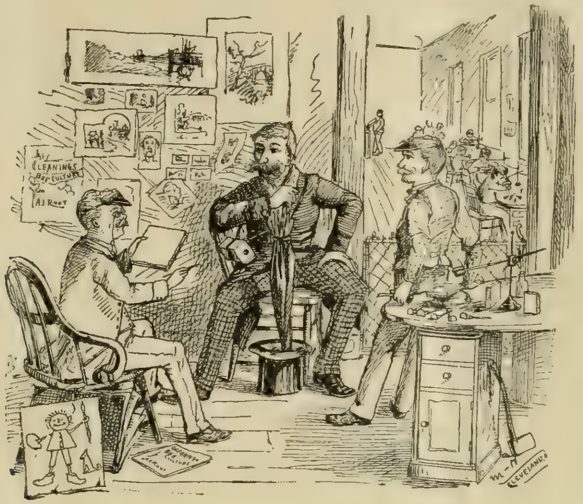
[Friend G., we are glad indeed to get a report direct from Italy; but we are very much surprised to have you intimate that the honey-bees of Italy are not yellow-banded. You certainly must be stating the matter very strongly or else you have not been very thorough in your investigations. D. A. Jones, you will remember, visited Italy expressly to see about the Italian bees. Besides this, an old schoolmate of mine, a most careful and conscientious man, went over to Italy on purpose to investigate this very matter you mention. He brought home a large number of queens from different locations. He said he found a good many bees that would be pronounced common blacks by some people, but that these bees, when filled with honey, and placed on a window, showed distinctly the yellow bands. They were, however, in some cases, so dark as to be of a rather leather color more than golden yellow. The importations that we are receiving constantly from Italy must certainly give us some sort of idea of the bees to be found there.] A. I. R.

RAMBLE NO. 46.

WITH THE ARTISTS OF CLEVELAND.

Our journey westward from Jamestown was uneventful, except for the little surprises we were constantly meeting. We of the far East hear of smoky Pittsburg and its iron industry, but we seldom hear of the smaller iron-manufacturing towns. So it was a surprise to us to see nearly every village of importance all through Northeast Ohio, clear up to and including Cleveland, a busy community fashioning iron into useful articles. Cleveland is largely engaged in the iron industry, as its tall chimneys and smoky aspect will attest.

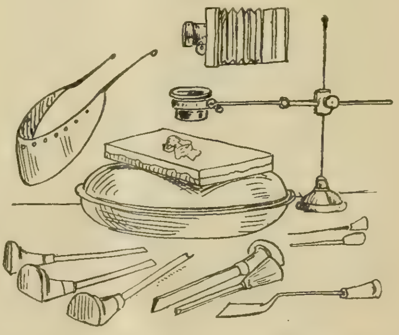
"Forest City" is what the good people are delighted to call their town; and from our short stop and limited time for observation we should say it is well named. The park on the shores of Lake Erie, Wade Park, and Lake View Cemetery, where the remains of Pres. Garfield rest in the magnificent monument erected to his memory, are all points of beauty and interest to visit.



RAMBLER AT THE ENGRAVING ESTABLISHMENT OF MURRAY & HEISS, CLEVELAND, O.

We did not call in Cleveland to find bee-keepers and look up the honey interests, but merely to pay our compliments to the artist who charms and edifies the readers of GLEANINGS with the etchings and fine engravings we have admired so long on its pages. Mr. Robt. V. Murray, of the firm of Murray & Heiss, we found at No. 204 Superior St. We fortunately found Mr. M. busy at his work. When we see an engraver at his work it seems to be a very simple process; but it requires so much patience, care, and such fine touches, that wood-engraving is considered one of the fine arts, and the artist becomes proficient only after long practice, and never reaches somewhere near the perfection he strives for. Any one having files of the leading magazines or of GLEANINGS for the past few years can see that great progress has been made in the art, and a fine wood-engraved picture of the present can scarcely be distinguished from a steel engraving of former days; and though we are favored with such fine pictures, the end is not yet. As many of the readers of GLEANINGS have never been into an engraver's shop (no, studio), with the editor's and engraver's permission we will give our impressions of the business. In the first place, we wish to say the Rambler is a natural-born artist. He loves pictures; and when the camera can not be used, the pencil is resorted to. Our earliest use of the pencil was a slate pencil, and the pictures that were made on the slate would set the whole school into subdued snickers. They became louder, though, when the artist and his slate were commanded to stand on the floor and exhibit himself and pictures. Though we were never a student of penciling, our sketches are of such a nature as to make an artist weep, and we have no doubt tears come to the eyes of Mr. Murray as he works over our elaborate sketches.

The wood-engraver's material to work upon is Turkey boxwood. No other wood is equal to this in fineness of grain and cutting qualities. The wood mostly comes from Turkey, and round about that part of the world, and is prepared in this country. It comes into the engraver's hands prepared, or put up in different-sized slabs, of type-high thickness, and the wood arranged in such a manner that the engraver's work is done on the end of the grain. The surface is smoothed off, and then whitened. The picture to be engraved is then drawn or photographed upon the surface, and it is ready for further operation. The engraver first puts on his armor—a shield over his eyes, a magnifying-glass to his eye, and, with his graver in hand, he is ready for business. I should have mentioned, that, when the drawing or photograph is on the wood, and all errors corrected, and necessary parts retouched, the whole surface of the block is covered with a thin transparent paper, and the edges firmly beeswaxed to the sides of the block. The engraver then takes a portion of the paper away here and there as the work progresses. A whole row of men thus armed, and silently at work in a room, is a very solemn sight, and highly impressive.



A KIT OF ENGRAVER'S TOOLS.

The boxwood block and drawing are next placed upon a flat rounding leather pillow filled with sand (the artist, I believe, calls it a swing-pad), in strong or concentrated light, and the work proceeds. The tools of the engraver are few, and, to the cursory observer, they all look very similar; but they consist of gravers, gouges, chisels, and tint-tools, of all grades of fineness. Machinery for ruling straight mechanical lines is also used. The engraving of a drawing or design is merely touching it up into lights and shadows; but the producing of these shades is where the fineness of touch comes in: and the terms "line stipple" and "cross-hatching" are terms common to the engraver.

In times past the wood engraving was used in the press; but now a cast of the engraving is taken with wax, and a metallic electrotype made, from which thousands of impressions can be made.

All other methods of making engravings are called "process work," or by mechanical means. Under this head comes the production of those half-tone prints, also the cheap, quickly gotten-up outline prints for the daily papers, known as chalk or plaster-Paris engravings. Etchings, such as illustrate these Rambler's letters from time to time, are reproductions by photographic and chemical means of pen-and-ink sketches drawn by Mr. M., every line and dot just as the artist made them, with the only difference that, on the original sketches on paper, they are drawn about twice the size that they appear here. Half-tones are direct from photographs or wash drawings. No matter how fine or how rough the engravings in our papers may be, the reading-matter is much more interesting and lucid than if the cuts were not used. GLEANINGS is truly fortunate in finding an artist who can enter into the spirit of the industry, and give those correct pictures which add to the popularity of the paper. Long may it wave. RAMBLER.

[When we learned of Rambler's proposed visit to the Home of the Honey-bees, and of his trip to California, we particularly requested that he call at the office of our engravers, 204 Superior St., Cleveland. The article above, and the engravings, show that his call was not made in vain. We very frequently receive inquiries as to our engravings—how they are made, and where. Rambler has very faithfully told the whole story. With reference to the picture, Mr. Murray is the one sitting in the arm-chair, with pencil in his hand. He is the artist. Mr. Heiss, the junior member, is the engraver; and Rambler—well, you know who he is; that umbrella and its relation to the hat, those striped pants, all are characteristic. By the way, we notice the picture of an urchin waving the emblems of the engraver's art. We have been querying whether this is one of Rambler's original slate-pencil drawings that caused the school to snicker. Under one of the engraver's desks we notice an ax. Is that for the benefit of unwelcome ramblers, or does it find some other legitimate use? The members of the firm, however, are not dangerous. They are both exceedingly affable and pleasant, and we commend them to bee-keepers and others desiring first-class work, and *promptly* done. We have no pecuniary interest in the concern; and this free "add," if it may be called such, is made without their suggestion or knowledge.] E. R.

CYPRUS ; BEES AND BEE-KEEPING.

SOMETHING FROM P. H. BALDENSPERGER.

Only eleven years are past since Jones and Benton left America in search of the Eastern bees, and imported hundreds of the yellow beauties into Europe and America; and now I should say it is next to impossible to have one single pure Cyprian. Isn't this a curious fact? Many parties have been writing to me to have Cyprian queens; but up to last fall Mr. Benton had the choice; and as I am no queen-breeder I almost always directed to him. Although Cyprus can be reached from Jaffa in 24 hours I never thought it would pay to go there myself; but I wanted a little bit of fresh sea-air. The trip to Cyprus and back was supposed to take four days. Up coast the steamer passes Cæsarea Palestina, mentioned in Acts, where St. Paul was tried before King Herod and Felix, and here he appealed unto Cæsar. Only ruins of bygone beauty mark the place, and a Bosnian colony of Mohammedan emigrants are now building up into a new Cæsarea.

After six hours by sea the steamer anchors in the bay of Acre, at the foot of Mt. Carmel, where a German settlement is flourishing in all but bee-keeping. Some have clay cylinder hives, others box hives, and some Dathe, Dzierzon, and other German hives. They average very little honey, owing to want of pasture in the immediate vicinity of the town of Haifa, and the want of knowledge. Mt. Carmel itself is beautifully covered with melliferous plants, as sages, thymes, and others. In one of the Russian-Jewish refugee colonies on Mt. Carmel one of my scholars is putting up an apiary, after the Langstroth system, our hive, and seems to have done tolerably well.

Going up the coast we passed Tyre and Sidon by night, and morning found us at the foot of Mt. Lebanon. Two days were lost at anchorage at Beyrouth. A gale would not allow the steamer to discharge the goods; and when, on the morning of the third day, we arrived at Larnaca, in Cyprus, the steamer was gone, and I was told that, before a fortnight was over, I could not go back again. What a dull hope, to be walking about a small town, with the prospect of enjoying its crumbled walls and base Cypriotes for a fortnight, while the bees in Palestine are in vain awaiting me to take them to pastures new! I then concluded not to leave home again, at least not in May, across the sea, when work is pressing. How often did I hear about this "abode of the gods"! but the Turks have done their part in destroying nature and art. It is not now to be envied. The position is good; the climate, like all Mediteranean countries, is haunted with fever in the lowlands; but, besides this, locusts have been roaming over the land, and destroying what little green the numerous goats left, which themselves have been gnawing the young growth, preventing, in connection with the Turkish misrule, the restoration to its former charms. The British government is trying to restore the island; but it certainly will be long before the inhabitants will awake from their drowsy nap. And right here friends Jones and Benton first brought American ideas and bar-frame hives; and the only thing I found here was two two-frame nuclei in the house of Mr. Derwishian, a graduate of Benton's school. The day before I arrived, another of Benton's scholars had gathered every movable hive and steered into Egypt to improve the Egyptians, as I understood; but not having seen him I was sorry to find I had come here to go back again without taking even a Cyprian queen with me.

The two two-frame nuclei at Mr. Derwishian's were as cross as cross can be. Smokers and veils of enormous sizes availed nothing. I never saw such a bad lot, even in Palestine, except when the camels had upset quite a number of hives, and they were pitching at us in fury. Mr. D. attributed this behavior to Mr. S. G.'s rough handling the day before, or three days before. Mr. D. insisted on working them without smoke, which was just the right thing to keep us at a distance, and I could not enjoy the pleasure of seeing the queen. Since I came back the queens have mated, and I received one here which is developing nicely, with very nervous bees. Mr. D. has sold all his bees to Mr. L., who started with them to Egypt, and he himself will leave the island, thus leaving nobody to care for Cyprian queens or bar-frame hives. He had a beautiful arrangement for silkworm raising. The moths were actively engaged laying eggs, while he had a nice white funnel through which the eggs were dropping into little sacks. Mr. D. pretends to have a method of raising healthy insects, peculiar to himself, and tries to beat the French market. He will not divulge his secret, but keeps it to himself. He has dropped bee-keeping altogether, as he does not believe in returns from this business. It certainly is a poor place for honey; and as he could not depend upon queen sales, from different causes, he has made up his mind to give up bees which give no honey, and the island altogether, as the climate has ruined his health and the islanders his feelings. He had given a man a few hives a year ago; and when he invited me to take a look at them, the superstitious Cypriote objected, fearing the effect of the evil eye. After demonstrations, dickerings, and threatenings the man at length gave way, and we proceeded to the clay-cylinder apiary. P. H. BALDENSPERGER.

Jaffa, Syria, Oct., 1891.

To be continued.

BEE-PARALYSIS.

MORE PROOF OF THE SALT CURE.

Editor Gleanings:—In a recent issue of your journal you request those having had experience with the new bee-disease, and the use of salt as a remedy for it, to report their success. In '89 we had two colonies affected. We changed queens, which seemed for a time to mend matters; but in the spring of 1890 these same two, and five other stocks, were badly diseased. Not knowing what to do we left them alone. Having young and prolific queens they managed to exist through the summer and winter following; but when spring opened again, and the bees could fly out, we found 24 colonies very sick. Their alighting-boards were covered with dead and dying bees. They were black and shiny and trembling, seeming to suffer very much. We felt now that something had to be done or we should have to give up the business; so we concluded to try the salt cure, recommended by the editor of the *American Apiculturist.* We promptly mixed enough in the right proportion to doctor the whole 24 stocks. I used it twice in three or four hives worst affected. It was not more than two days afterward when we noticed a change, and in a week they were apparently well — building up remarkably strong, and remaining healthy all summer. Half of our apiary was not affected, to our knowledge. These we moved out of their hives into hives washed with salt water; and in this way we prepared hives for new swarms. It is a simple remedy, yet not to be despised. We must not reject the small things of the earth. I know very little of the science of the disease; but I do know that, unless something had helped, our harvest of honey would have been far worse than it has been this year; and I do hope that this simple remedy may be as effectual elsewhere and hereafter with us, if we should ever have such an awful death-rate among our bees again. MRS. MILTON CONE.

Kansas City, Mo., Oct. 12.

[You have given valuable testimony. Come to think of it, we haven't had a case of bee-paralysis in our home yard since we have kept down the grass at the entrances of the hives with salt. At our out-yard, where we used no salt at the entrances, we had two cases of bee-paralysis. These facts are significant.]

BEE-PARALYSIS; SALT CURE SURE AND EFFECTIVE.

I notice in Oct. 15th GLEANINGS several items referring to the sodium remedy as a cure for bee-paralysis; and from observation and various reports from different sections I see that this disease is becoming general, and, if not checked, may eventually become fatal, similar to foul brood. Some three years ago this fall I got a queen from you, and the following season her progeny were, as nearly as I could judge, black, shiny, and, as I thought, the most peculiarly marked bees that I ever saw; and not having had any experience with what was then called the nameless disease I began to mistrust, from what I had read in the different journals, that I had in my apiary the above disease, or a new strain of bees, and at once I sent you a few of the bees, and requested your judgment as to what kind they were. I gave a full statement as to the bees. Perhaps E. R. may remember the above, as I believe you were on your California trip at the time. However, I received a report stating that the bees resembled bees that had the above disease; also that they indicated robber bees; also referring me to the sodium (salt) as a cure. I at once prepared some and sprayed these bees, and all other colonies that I had, once a week, with moderately strong salt brine. The following season I had none of those shiny, hairless, varnished bees. I continued the salt spraying once a week during the early spring till October, and I am ready to challenge all beedom to show up more hearty, bright, and beautiful bees, both imported and American stock; and from my experience along this line I would advise all apiarists to use the salt spraying once a week, and the bee-paralysis will be known only in the past. J. A. GOLDEN.

Reinersville, O., Oct. 20.

[We do not remember, friend G., the circumstance of writing to you, but we presume we did. As to the salt remedy, you must have got this from some other source, because at that time we did not know of its use for this disease. Now we have plenty of testimony to the effect that salt is an effectual cure. Are there any who have tried it and found it to fail? We do not wish to take up very much more space, but we wish to get the truth pro or con. The idea of salt curing bee-paralysis, in the language of the school girl, seems too ridiculous for any thing; but if any one had told us that chloride of sodium would be a sure cure, we should have believed it at once.] E. R.

A REAL LETTER FROM HELEN KELLER HERSELF.

SHE SENDS KIND WORDS TO UNCLE AMOS AND TO THE HOME OF THE HONEY-BEES.

TUSCUMBIA, ALABAMA, Oct. 14, 1891.

My Dear Mr. Root:

I hope you will excuse me for not answering your kind letters before, and I think you will, when I tell you that I have a great many letters to write during school-time, and my friends do not like to have me write in vacation; for you see I can not help getting tired sometimes. But I was very glad indeed to get your letters, and very grateful for the money that you sent to help educate poor little Tommy. I was sure that if good people knew of Tommy's sad needs they would wish to have his life made as bright and helpful as possible; and it is very beautiful to see how quickly and lovingly people everywhere took the little stranger into their hearts. My friends in Boston write to me that his mind is still in darkness but I am sure that God's beautiful light will banish the darkness just as night hastens away when the sun appears.

I certainly hope that I shall have the pleasure of seeing (for even little blind girls can see, in some wonderful way that I call seeing, with my mind) Uncle Amos some time. Then he will see what a wonderful, faithful servant the dear God has made the hand. I can tell my friends as soon as I touch them, and I can do almost every thing that girls who can see and hear do, because I have the dearest teacher in all the world, and the sharpest eyes imaginable in the tips of my fingers, and sometimes teacher says I ought to see more than others because I have ten eyes, but that is only fun. How I should love to visit the Home of the Honey-bees! I have learned a great deal about the busy little workers, and once I wrote a little story for teacher's birthday and told about the different kinds of bees and their work. I am very fond of animals and like to learn all I can about them. I have a funny little donkey, a beautiful pony, and a great dog and a little canary. Besides these pets I have the loveliest golden-haired little sister, and the softest, plumpest baby brother you ever saw. They are named Mildred and Phillips Brooks. Bishop Brooks is one of my dear friends, and I named little brother for him. I have been to Ohio several times and I have dear friends in Cincinnati and Columbus and Van Wert. But I do not know whether Medina is near any of these places or not. I hope when you write to my dear friend Mr. Goodhue you will give him my love, and tell him I am going to write him a long letter soon. Now I must say good-bye. Give my kind love to all my friends at the Home of the Honey-bees. From your little friend,

HELEN A. KELLER.

[Many thanks to you, dear little friend, for the pains you have taken to write me such a good long letter. Medina is very much nearer to Cleveland than it is to Columbus or Cincinnati. It is on the crossing of two railroads, and these roads touch our premises; so the Home of the Honey-bees is right in the northwest corner made by the crossing. One of the roads, the one going north and south, is named the Cleveland, Lorain & Wheeling, and this one communicates directly with Cleveland, which is only 30 miles away. The other road, east and west, is the Pittsburg, Akron & Western; but at the present time its eastern terminus is Akron, 20 miles east of here. I mention this that it may enable you or any of the other friends to reach us easily.

You speak of poor Tommy as being still in darkness. I suppose that means that he can not yet read and write so as to talk with his friends, as it were, and learn all about this beautiful world which God has given us. I have faith as you have, dear Helen; and let us pray for him that God may brighten his intellect, and help his teachers to reach out after him in the same way they reached out for you.

And now, dear Helen, there is one thing I feel very anxious to have you tell us; and that is, what were your feelings before your teachers reached *you?* What did this world seem to you like then? and in your thoughts did you have any conception of the great God who gave you being, and who gave you a place here among us? I do not ask this question from idle curiosity, and very likely you may find it difficult to answer it at all. But I have long had a sort of faith or belief that God would make himself known to his children in some way, even though, perhaps, in a very indistinct way, when they, like you, were cut off from communication with their fellow-men. You see such cases are very rare where one lives to be as old as you did without being taught more or less of God. From what I know of you I should conclude that, with your bright happy disposition, and keen vigorous intellect, there would have been *faith* that some time or other you were to come out of this darkness; and this faith would account in a great measure for the readiness with which you were reached and rescued. Did you begin to recognize that you were not as other people? I have not been able to learn just how old you were at the time of your emancipation; but I believe you were old enough so you could remember and tell us something about it. Will you forgive your good friend Uncle Amos for being so inquisitive, and for calling up or recalling a portion of your life that may be painful to you? How wonderful and strange it is that God has seen fit to intrust this great work *to us*, of teaching his children! yes, the work of teaching all mankind of Him who came to earth to be a savior for us all! Good-by, dear little friend; and accept our thanks again for your excellent letter.

I may say to our readers that we publish the letter without any change whatever in the general arrangement, spelling, or punctuation.]

HOW WE PUNISHED THE ROBBERS.

WETTING 'EM DOWN WITH THE FORCE-PUMP.

The other day we asked one of our students to feed a few late colonies of bees that had not gathered quite enough to carry them through the winter, and there was danger of robbing. We thought we had better put the feeder on at night, so that they might have it taken down before morning. We think our instructions were carried out fairly well with one exception. When turning the syrup in the feeder, a little was allowed to drip down the side of the hive. This, of course, attracted the bees early in the morning; and as three hives had been served in this way, it was astonishing to see how quickly the bees commenced robbing; in fact, the center hive of the three was literally covered with bees, and we immediately set it in a tent covered with mosquito-bar. The other two had perhaps three or four quarts of robber bees around each hive, and they had almost become masters of the situation, in spite of the determination of the colony to prevent the robbers from getting in. The force-pump was then brought into requisition, and the thousands that were flying about the hive were soon sprinkled, as well as those that were trying to get in. After allowing a fine spray to rain on them a few minutes, the entrance became somewhat cleared of the robber bees on the two hives that were not covered with the tent. We then placed a little brush over the entrance of each hive, and covered it quickly with wet grass, and put long wet grass on top of the hive, allowing it to hang down all around, laying a weight in the center to hold the grass from slipping off. A little cold water soon discouraged them from attempting to rob these two hives any more. The rush, however, that was made for the tent when they could not get through the mosquito-bar was astonishing. They managed to gain an entrance by alighting on the ground and crawling under the netting. In this way nearly a bushel of bees got around the hive, while we were protecting the two other hives with grass and water. We then brought the spray to bear on these bees inside the tent, and in a short time we had them thoroughly drenched. There was an immense number of bees around trying to get in, so we just raised the cloth a little way from the ground, and allowed as many of the robbers as possible to rush in. In this way all the robbers in the yard were admitted under the tent; and as they flew up and alighted on the cloth inside, which was literally covered with them, we drenched them thoroughly with the cold water. This caused them to tumble down and crawl out on the ground; and as soon as the sun dried them sufficiently they flew back to their hives. In this way we caught all the robbers, and gave them a thoroughly good soaking, and, to our astonishment, after the tent was once set over the hive and a little spraying done, few if any more bees got into the hive; in fact, the inmates seemed to be quite able to protect the entrance, and did so; the result being that the robbers, instead of getting into the hive, were simply caught on the inside of the tent, where they were held until we gave them a thorough soaking. Now, the point is this: Do not leave the mosquito-netting down on the ground, but keep it sufficiently raised so that the robbers will go under. Have your force-pump and cold water ready; and every time you get a fresh lot inside, give them a spraying.—*Canadian Bee Journal.*

THE HOME OF THE HONEY-BEES AND ITS WORKING FORCE.

A COMMUNICATION WRITTEN BY ONE OF THEM.

The following was handed me by one of our boys. Perhaps I might say, by way of explanation, that it comes from one who receives only moderate wages. It was both a surprise and a rebuke to me, for I had but little idea that he felt toward his employer as he expresses himself. Trusting that it may prove useful to those of our readers who hire hands as well as to those who work for wages, I give it entire as it was submitted to me.

My friends, do we ever stop for one moment to think of the blessings that surround us as helpers at the Home of the Honey-bees? Do we realize that we are blessed above others in things almost too numerous to mention? In our daily labors we are given almost unlimited freedom; we come and go without having any exact and stated time set; and if we are not there at whistle time, no high fence with bolted door stands before us, and obliges us to go away; but we are allowed the privilege of keeping our own time. And, friends, how careful we should be in giving good, big, well-rounded, honest hours! for if each one of us should lose ten minutes every day it would be over 1000 minutes, or over 16 hours; and at the price of 12½ cents per hour it would be $2.00 every day; and for a year—why! it would soon be enough to buy a farm. Friends, let us be careful. We are not ground down and kept under the hammer by a harsh and cruel employer who seeks to get all out of us he can, but are looked upon as men and women. Who ever heard of a strike or any disturbance at the Home of the Honey-bees? Who ever heard of wages being reduced, and harsh methods resorted to? What a wonderful thing it is! Our temporal as well as our spiritual welfare is looked after, and every day we may hear the word of God read at the noon services, the voice in prayer, and sweet songs sung; and, friends, can't we make this institution one of the grandest and most useful instruments for doing good? and let there shine from every door and window a spirit of love and goodness. We shall feel better, be better, make better helpers, better men and women, and make the world better for having lived in it; and the Home of the Honey-bees will be known the world over as a God-fearing institution, and other shops and factories will try the example.

What beautiful scenes are all about us—blooming gardens teeming with vegetable life; giant windmills pumping the cool and refreshing waters from the earth; pleasant walks and drives along shady avenues; beautiful evergreens and vineyards shading the homes of the busy little bee, while all around is peace and quietness; and while there is great activity and business, and goods are being shipped by the carload, yet there are no checks, no drawbacks, every thing being done by willing helpers. The air is not polluted by profanity and tobacco smoke; and, friends, while we may be away five or ten miles, while we *are* away, don't think we can smoke and do things we would not do at the shop. God sees us, even if our employer does not. We are doing wrong, and deceiving ourselves. Look out; be careful. What beautiful lessons we can learn every day scattered all around us! And now let us do the tasks that are set before us, with cheerfulness and alacrity, thankful that our lines are cast in such pleasant places, amid such healthful surroundings, looking to the best interests of the Home of the Honey-bees; and last, but not least, we are handed out every Saturday night a fair and reasonable compensation for our services, not grudgingly, but with a kind and loving spirit. And, friends, how many hours and perhaps sleepless nights have been spent by those who are in charge, planning and thinking to find work for all of us to do! Are we thoughtful? do we strive to please? do we do our work well? are we willing to do unpleasant and disagreeable things? All hail to the Home of the Honey-bees! A HELPER.

THE HOFFMAN FRAME.

A FIXED FRAME THAT HANGS IN NOTCHED RABBETS PREFERRED.

Mr. Editor:—I have been much interested in the discussions on the fixed-frame question. I have had the fortune, or misfortune, to have in my yard four or five different kinds of frames at the same time. This, while being a disadvantage in many ways, has given me a good opportunity to judge of the merits of the different frames.

The Hoffman frame, which was of the number, had the preference until I began manipulating them in the spring. The dampness of the cellar had so swelled the frames that it was with difficulty I could remove them at all. I complained of this to Mr. Whitmore, of whom I had secured the hives. He assured me that they would work better when they became dry. So they did; but still they did not work easily. Then, to add the delay and inconvenience of turning the screws, prying the frames apart, and the necessary pains to prevent crushing bees, they were a very objectionable frame—especially when the wire-end frame, similar to the one mentioned by Mr. B. Taylor, in GLEANINGS for Sept. 15th, stood by their side and could be moved instantly without turning screws, prying out frames, or crushing bees. This frame has nearly every advantage of the Hoffman, with none of its disadvantages, and, at the same time, every advantage of a loose frame. It hangs on a single wire nail driven into each end of the top-bar. The nails rest in shallow notches in the edge of a strip of tin nailed on the inside of the hive, projecting a little above the bottom of the rabbet, and extend to the sides of the rabbet to prevent longitudinal motion. There should be staples along the sides, and toward the bottom of the hive to hold the bottom of the frame in position. There is absolutely no chance for the bees to glue the frame fast. A hive with these frames can be tipped to any position except bottom up, and I have moved them miles on the same wagon with the Hoffman, with as good results. This is the frame for me, and I shall eliminate all others as rapidly as possible.

In the footnote to Mr. Taylor's article I notice that "all spacing-devices in the rabbet have been unpopular;" and the reason given is, that you roll the bees over and over unless two or three frames are first moved. I have experienced no more difficulty in this way with this frame than with the other, and can see no good reason for its unpopularity. I have no crow to pick in this matter, but am anxious that the brethren should have the advantage of the cheapest, handiest, and best.

Etna, Minn., Oct. 12. W. A. Boynton.

[If your Hoffman frames swelled so as to stick in the spring, they could not have been made as Mr. Hoffman makes his. As he uses them, they can not possibly do so; hence I conclude you use something a little different. Of course, the bees could not stick with propolis your preferred frame in notched rabbets; but such a frame destroys the function of lateral movement; and I am sure that, with some hybrids, you would anger them very much more by pulling the frames out. At the present writing I know of but three bee-keepers who use fixed frames in notched rabbets, and they have used them for only a season or two. But I do know that several who tried the plan abandoned it. With shallow frames, however, I have no doubt it will work, and possibly that is what you are using. But with a deep frame, or with a frame as deep as the Langstroth, it must of necessity roll bees over more or less when the colony is strong, maiming a good many, if not killing them.] E. R.

THE HOME OF THE HONEY-BEES.

ITS SIZE AND GROWTH.—BY E. R. ROOT.

If you were to get upon an eminence a couple of hundred yards north and east of the Home of the Honey-bees you might see something very much like what is shown in the accompanying engraving. But we have no great hills or mountains in our vicinity; so in order to get any good view of our bee-plant we have for some little time cherished the scheme of elevating a Kodak by means of a kite or balloon, and then at the proper time pull the string and press the button. But the scheme never materialized beyond the building of a mammoth kite by a couple of nephews; and although it swung aloft majestic and like a thing of life we did not dare to trust our Kodak to its tender care. Accordingly our special artist, Mr. Murray, elevated himself in imagination; and what he saw is depicted here, we think, without exaggeration.

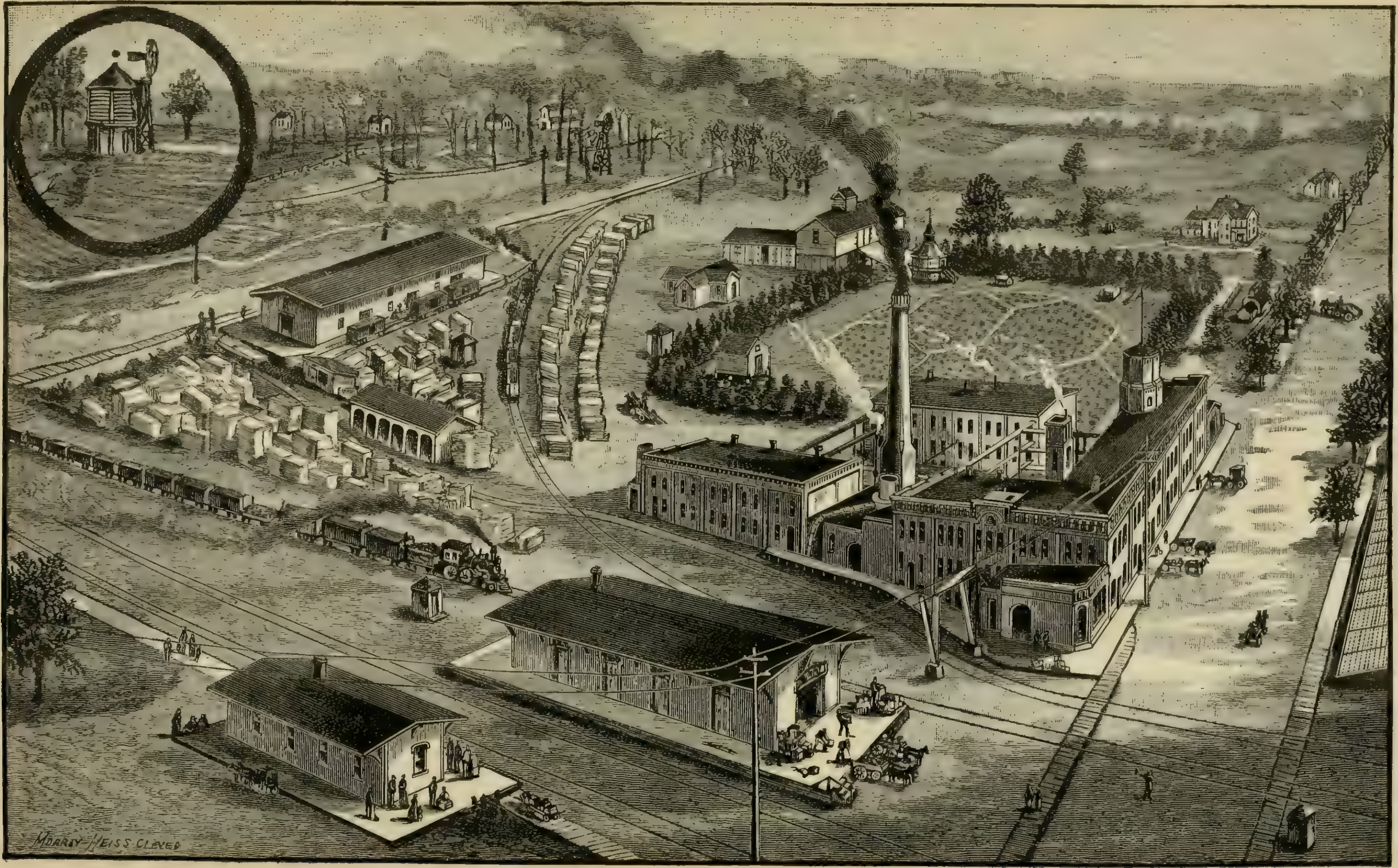
We really do not wish people to think we are bigger than we are; and if they have any such idea, let them come and see for themselves. Almost every week we are receiving visits from bee-keepers from all over the land; and they have generally expressed surprise that we have so large a plant, and every thing equipped so perfectly. They had not imagined that we had so many large permanent brick buildings. In fact, it seemed inconceivable that so much ado could be made about the busy little bee. With the exception of our warehouse, shown at the upper left-hand corner of the picture, the large buildings are all built of brick—one of them being fire-proof, and all equipped with automatic Grinnell fire-sprinklers, the use of which we have before explained. To add further to our security in the way of fire protection, we put in, in 1891, a mammoth steam fire-pump, 12x7x14, of a capacity equal to two ordinary city fire-engines. To this is attached, at various distances, some six hydrant stations, with 500 feet of 2½-inch hose—all ready for instant service, night and day. The entire establishment is lighted at night by a complete Brush incandescent electric-light plant. This finds service in the manufacturing departments toward evening during the short winter days and at other times when we are obliged to run nights. The entire bee-plant, exclusive of horticultural interests, covers an area of five acres; and this whole amount, with some minor exceptions, is devoted exclusively to the little honey-bee in some form or other. If you were to put all of the larger buildings in a row, end to end, their length would aggregate 500 feet, to say nothing of the small structures and lumber-sheds scattered here and there, and the large bank barn. As all of these buildings are two-story and basement, the floor space, to the width of about 40 feet on an average, would reach 1500 feet, or nearly one-fourth of a mile.

The question may be asked, "What is the secret of this enormous growth, from one building 40 x 100, in 1878, to five such buildings in 1891, to say nothing of the smaller ones scattered here and there, not to mention the large freight depot put up by the railroad company just opposite our works, very largely because our extensive shipments demanded temporary storage until the next freight could pull them out?"

Few people have any idea of the amount of advertising that we do. While our cards appear in some of the largest agricultural papers in the country, this is only a small part of our real advertising. We send out annually 100,000 52-page catalogues to new and old customers, and the aggregate expense of this amounts to some $3000. Add to this about $1200 for outside advertising, and it makes a total of over $4000, exclusive of the indirect advertising through our own journal. But advertising alone will not build up a permanent business. There must be good goods back of it, so that, when a customer buys once, if he needs any more he will be likely to buy again at the same place. Once or twice during extraordinary seasons we have been obliged to send out inferior goods, on account of the rush of the season, and the customers must have something. We hope we shall never be caught that way again; for it is not profitable to make rebates afterward.

It will be impossible to enter into details in regard to all the departments, though we may touch upon some of the later improvements and additions. The old main building shown in front will be recognized as the one that has appeared in our A B C of Bee Culture. In 1889 we erected a 90-foot brick stack. For one-third of its height it is square; for one-third more it is octagon, then it terminates in a round shaft. It is 8 feet square at the base, and tapers gradually to the top. The flue inside is round, and 40 inches in diameter.

In 1889 another boiler was added, making our boiler capacity equal to 120 horse-power, and yet it is hardly adequate. One of the latest im-


MORRAY-HEISS CLEVED

THE HOME OF THE HONEY-BEES IN 1891.

proved Buckeye engines, of a capacity of 125 horse-power, runs the wood-working establishment just below the boiler-room. Three other engines help to make up the equipment; viz., one 10-horse-power for the machine-shop, and another 10-horse-power for the wax-room, dynamo, and an elevator, and a 7-horse-power for the press and printing departments. Three freight elevators—one in the wood-working building, one in the main building, and one in the warehouse, take the freight up to the various floors. Overhead runways connect the main building with the wood-working building and machine and tin shop. This latter is fire-proof, brick, equipped with the Grinnell sprinklers, the same as the others. It is 36 x 98, two stories and basement. This was put up in 1890. It is in this building that all the metal work is done, such as making extractors, feeders, tin rabbets, wax-extractors, perforated zinc, saw-mandrels, and all sorts of wood-working machinery, foundation-mills, and every thing else that the use of the little bee can demand in metal.

Several Smead odorless water-closets are situated at convenient points on our bee-plant.

In 1891 an east and west railroad was put right through our premises, and so we now have two roads—an east and west as well as a north and south. Some of our customers, no doubt, have noticed a reduction in their freight bills—a fact due to competition, that life of all trade. Right alongside of the east and west road we erected, during the past summer, a building 48 x 96, two story and basement, of wood. This is designed for storing made-up goods, and it is intended to receive the work turned out during our dull season. Heretofore our storage room has been very much cramped, with the result that we could not make up ahead very many goods for the following season's use. The severe lessons we have learned in getting behind during the busy season, and the consequent necessity of running nights, putting on green hands, with the inevitable result of poorer workmanship, has forced us to the construction of this latter building. In addition we have bought enough lumber to last us anywhere from one to two years ahead. This lumber is stored in our own yards and in Michigan, awaiting our call. Instead of being obliged to use lumber not properly seasoned, we now have a stock of the very best of dry lumber. This, together with our storage building, we hope will enable us to make prompt shipments, even of carloads. You see cars on our switch standing in front of the warehouse. All that is necessary is to truck the goods, already boxed, on to the car, to be pulled out by the next freight. Almost all of our goods can be loaded on our platforms. Small shipments are trucked across the draw-bridge, shown in front of the main building, to the freight depot.

The small evergreens that were set out, surrounding the apiary, have now grown to an average height of 20 feet, and their limbs branch out past each other so much that it is now quite difficult to pass between the trees. When they have a few years' more growth, and their tops have been lopped off, as a windbreak they will be complete. In fact, even now, on a cold, piercing, wintry day, the protection which they afford inside of the inclosure is very apparent. We have never yet had 500 colonies in the home apiary—not even nuclei. So many in one locality where they can not possibly support themselves are pretty apt to get into mischief with each other, unless eternal vigilance is exercised during the hours of bee-flight. We do not usually have more than 200 or 300—rarely this latter figure—in the home yard at a time, the extra number being put into an out-apiary. This out-yard is used as a sort of reserve, both to store honey and to supply bees, when necessary, to the home yard.

We find, by looking on our books, that we have sent out, during the past season, over 2000 queens. Besides that, we sent out from our own apiary alone nearly 400 nuclei. Of course, it would be impossible to rear all of these queens ourselves. Accordingly, we have to draw on one or more apiaries in the South, besides some from the apiaries of Neighbor H. and friend Rice. These yards are situated anywhere from three to twelve miles from our home apiary.

EXPERIMENTS.

DO WORKER BEES LIVE MORE THAN 45 DAYS, UNDER NORMAL CONDITIONS?

It was with intense interest that I read Bro. France's article on page 760 of Oct. 1st GLEANINGS; not particularly because Bro. France was trying to disprove some of the things which I have written, but because he has brought out something new for us to think about. May it not yet be possible that we can make individual worker bees live a year by throwing the colony into an abnormal condition? All of my experiments have been with colonies in a normal condition; or, in other words, with colonies that have their "own sweet will" just as they would have it were they in their home in the hollow tree in the woods. I never had a doubt but that bees could be compelled to do many things which they do not usually do by throwing them out of balance, as it were. Huber threw his colony out of balance by confining them to the hive, and so proved that it took 20 pounds of honey to produce one pound of wax; but nearly all of the present day do not consider this just a fair experiment; and, if I am correct, none now believe that it takes that amount of honey in "our every-day" bee-keeping to produce a pound of comb. Again, some one has proven that, by allowing none but young bees in a hive, bees go into the field to labor when three or four days old; but all who are at all observing know that, in the production of honey "with the least amount of capital and labor," bees do not go into the field as laborers in their "childish moments." Now, like Bro. F., Doolittle has been experimenting to see if he has been wrong in the assertions which he has made for a number of years, that "bees, when in a normal condition, do not live more than 45 days," and here is the history of those experiments:

July 9th I went to my out-apiary, five miles distant, and there shook into a box 2½ lbs. of young, poorly marked hybrid bees. I brought them home to my own apiary, and set them a little distance away from the other bees, after having first introduced to them one of the queens which give bees so yellow that they look when flying at the entrance like lumps of gold. In this lot of bees there were hundreds which had only just crawled out of their cells, and those probably not more than from three minutes to an hour old, for I took pains to secure all the young bees possible. On the morning of July 10, three frames of brood from this queen which was introduced to the box of bees were put into a hive and set away from the rest of the bees as above, and the swarm made as above given hived from the box in this hive, which also contained two empty combs and the rest of the hive filled out with frames having starters of foundation in them. As the three frames of brood had many cells from which bees were hatching, I watched the hive closely to see when the first "lump of gold" would take wing, for, according to those who have bees go to the field young, these lumps of gold should be astir as soon as the 14th or 15th, but neither of these days showed any signs of aught but hybrid bees. On the 16th, at about two o'clock, I saw the first out for a playspell; and each pleasant afternoon thereafter more and more were out, but not one of these yellow ones showed herself at any other time of day till the 26th, when the first yellow bees were seen coming in with loads of pollen and honey during the forenoon. So far I had the same proof I had in my other experiments, that, when there were plenty of field laborers in a colony, bees do not go out into the fields as laborers till they are 16 days old. I now watched with more than usual interest, as the 20th to the 25th of August came on apace, to see the field bees go out and in at the entrance to this hive; for if I had been right in the past with the 23d of August at 10 A. M., none of the hybrid bees should be left. August 22d a very few hybrid bees were seen going out and in at the entrance, perhaps one in three or four minutes; but August 23 none were seen, and on the next day the hive was opened and carefully looked through without finding a single hybrid bee in it.

Now, the question which arises is, Would there have been any difference had these bees been Carniolans? I do not think so, for, with the Carniolans which I have had at three different times, they have not proved any longer lived than other bees, and I have had Carniolan bees from a queen from the same source Bro. F. says his were from. Then, if the above conclusion is correct, we see that the long life which Bro. F. secured for his bees came from throwing the colony into an abnormal condition, or else young bees from other colonies kept the population good. I am glad he is to experiment further, to tell us which of these is correct. One thing I do not understand about that colony of his, unless young bees from other colonies did go to it. He says he "hived a good fair-sized swarm" in his experiments; and I think that it is Professor Cook who defines a "fair-sized swarm" as consisting of about 20,000 bees. Bro. F. then goes on to tell us how this fair-sized swarm of bees occupied and filled with brood and honey a three-story hive, so that he had to take away all of the combs out of these three stories in order to get all the brood away, as they had brood in all the combs forty days after they were hived. If not a single bee had died up to this time, they occupied more room than I should expect a good fair-sized colony to occupy which had had no accessions to its number in 40 days.

Now just a word about secreting wax. Bro. F. asks whether the bees in my observatory hive were building comb or not. Most certainly. Bees always build comb in a honey-flow. Does not Bro. F. know that? You can not have a honey-flow without the bees secreting wax, all talk to the contrary notwithstanding. When a honey-flow begins, what do we see? The cells of the combs already built lengthened out with new wax, which delights the heart of the bee-keeper; next the cells of honey capped over, burr-combs built, etc., and Prof. Cook tells us that even bees on the clover-blossoms have the wax scales on them (I quote from memory). But my time is up. Don't shut down on us yet, Bro. Root, for out of these friendly discussions and experiments much good may come.

Borodino, N. Y., Oct. 16. G. M. DOOLITTLE.

[Doolittle is a pretty careful observer, and on general grounds it is not wise to disagree with him; but there is just one point on which my observation differs. I will admit that the *average* worker bee, during the busy season, dies inside of 45 days; but I can not quite think that they *all* do. Nearly every spring we have been obliged to buy up colonies, and some would be hybrids. Although these latter would be requeened early in May, I have often observed the presence of quite a number of the original hybrid bees, even to the latter part of August. This would make more than 90 days, and these colonies were remote from other hybrids too. The reason why I have observed the fact is because we do not dare to send out to our customers nuclei containing any impure bees. Two or three times we have been very much annoyed to find, in a colony from which we had intended to fill an order, some four months after an Italian queen had been introduced, too many hybrid bees. We have once or twice sent bees to Australia in a mailing-cage, and these bees were on the road anywhere from 38 to 42 days. It seems to me that, if bees will live this long, jostled about in the mails, with no opportunity for flight, they ought to be able, a few of them, to survive 90 days or longer, with freedom to fly, even when subjected to the toils of the season. Now, it is possible that I have not understood Mr. Doolittle; but I am very sure I have observed, for several different seasons, Italianized hybrid colonies that would show their hybrid blood for three months, and longer, after the Italian queen had been introduced.

Hello! here is something from that keen observer Emerson E. Hasty, who, as our older readers may remember, used to delight us so much by his bright spicy writings. What he has to say, though, doesn't materially strengthen my position. He suggests a rather new idea.] E. R.

SOME SUGGESTIONS FROM FRIEND HASTY.

A very valuable and interesting experiment is that which comrade France gives on page 760, Oct. 1st. Of course, it must be repeated by others, as well as in his own apiary. Besides the possibility he speaks of—a multitude of young bees joining in individually from day to day, there is the further possibility of a small wandering swarm entering some time when the keeper is not by. This last danger will beset his isolated colony as well as the one in the midst of the apiary.

We have heard of the witness who testified to the truth, the whole truth, and *more* than the truth; and what puzzles Mr. France and the rest of us is, that this comb-building colony looks, at first sight, like a witness of that sort. It proves that old bees build comb; and then it goes to work and proves so much more that we are all thrown to the ground. I write in the attempt to solve the riddle.

In the first place, is it probable that the army of careful observers, who have decided that the bee's life during the highest stage of activity is only six weeks, or a little over — is it probable that this truth-seeking host have all been mistaken—and so far mistaken as the difference between 45 days and 90 days? No, that is not at all probable. Yet I do not take the opposite horn of the dilemma. I don't believe any swarm entered unseen, or that any significant number of young bees joined individually. My solution runs thus:

Edwin France uses a very large frame and hive; and I guess the swarm was what some of us would call "a monster." He naturally calls it a "fair-sized swarm" because he sometimes has much larger ones. In the next experiment, friend F., weigh your swarm. Not very long after the colony was hived, the honey-flow ceased. At this time about half the colony, I conjecture, "laid themselves out" to go through the winter and work out their six weeks of active scratching around, next spring. In other words, they entered the semi-dormant state, in which time counts nothing, or next to nothing on the calendar of bee-life. This is just what *whole colonies* do in many localities where honey totally ceases early in the season. The only peculiarity in this case was, that half the colony were eagerly at work, while the other half didn't care whether school kept or not. But the work went on just as in February the work of, say, one-tenth of the colony goes on while the others are idle. The workers actually engaged in constant labor wore their lives out, and died in regulation time. Then, when there was pressing need of more laborers, some of the semi-dormant ones, like good patriotic citizens, volunteed to help. Thus they kept on doing as need required, till all had passed back again into the active state. So the *colony* built comb for 90 days; but no individual bee secreted wax for so much as half that time.

Richards, O., Oct. 9. E. E. Hasty.

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HEALTH VERSUS DRUGS.

SOMETHING ON THE OTHER SIDE.

A. I. Root:—Having read with much interest in the October 1st issue of Gleanings of your painful experience while sick, I am moved to write this letter with a view, if possible, of preventing much suffering that undoubtedly would follow a too hasty adoption, by numerous readers, of certain views expressed in your well-meaning sermon. As you declare yourself as no longer belonging to that class of people who "know it all," you doubtless will be open to new truths presented by the other side of the question, and by one who in their expression has only the welfare of humanity at heart. May I therefore say a few words in opposition to the use of drugs?

Having had a severe attack of typhoid fever some years ago, and having been attended by an allopathic physician, I am able to appreciate most of the queer sensations you so graphically describe in writing of your sickness, and, to some extent, to speak advisedly on the subject of drugs and their effects. It is not my intention to criticise or compare the various schools of medicine, but, if possible, to save you and others much unnecessary suffering. This I shall endeavor to do by turning your attention toward the natural means which Nature has provided to keep us in good health, and, when sick, to cure us; in other words, to trust Nature more and drugs, etc., less.

Like yourself, when sick I came, after a time, to have implicit confidence in the healing power of the doctor and his army of drugs, and never a suspicion crossed my mind but that it was due entirely to them that I was able, after some two months' confinement to my bed, to get up — a mere shadow of my former self, however. Since that time I have made all matters pertaining to health a special study, from all points of view, with the result that my confidence in doctors and drugs has been dispelled as completely as I have come to recognize the fact that health is obtainable only by obedience to Nature's laws. The doctor may give us some temporary relief, it is true, by suppressing some symptom, which, after all, is but the cry of Nature warning us that we are doing or have done wrong, and which is the evidence that she is endeavoring to remedy the evil for us. Medicine, however, as now practiced generally, is unable to restore health or cure disease. This is a fact admitted by numerous leading lights of the profession who have the candor to speak the truth. By the use of poisons, Nature's efforts can be diverted from her own wise work of expelling disease, in order that she may cope with the new enemy thrust in upon her. This is the effect that is called or mistaken for cure; but our wise mother as surely returns to the completion of her unfinished work, perhaps in another manner, and it is well to remember that each time she is thwarted her work becomes more difficult. Fevers are not cured by quinine; Nature's sweet restorer can not be replaced by recourse to *bromide of potassium*, chloral, or any other poisonous drug. A great many diseases are self-limited, and run their natural course, whether interfered with by the doctor or not; and it is in the ineffectual attempts in such cases to "break up" the fever that so many lives are sacrificed. If the patient recovers it is in spite of the doctor and drugs, not because of their interference. The constitution of the patient was strong enough to fight both the disease and the drugs; but in the majority of instances the doctor gets the thanks, not Nature, as should be the case. I now come to the principal point which induced me to write this letter.

You refer to the bromide of potassium as a "harmless medicine." In consequence of this, and the soothing effect it produced upon you in allaying the effects of the quinine, many of your readers, ignorant of any further particulars of the drug, will be tempted to try its use. To such I would say, "Be careful!" With all due respect to you, Mr. Root, for I recognize the fact that you have only the welfare of your readers and humanity in general at heart, bromide of potassium is not a harmless medicine but a *deadly drug*, the continued use of which ruins the mind and will destroy the strongest constitution. The use of the drug once begun, it becomes harder and harder to discontinue it, and its victim becomes a physical wreck. That there are harmless and very beneficial medicines I do not deny; but there are none such in the mineral poisons, by the use of which we but defile the temple of our body and thwart and hinder Nature. "A little knowledge is a dangerous thing," and may prove so to many of your readers in this instance, therefore I would say again to those who might be in need of the admonition, "Be careful!"

The evil effects of drugs administered by doctors is little understood by the public, and their indiscriminate use in self-doctoring is even less appreciated. The family physician may be a most worthy and conscientious man, actuated only by the best of motives in the administering of his drugs; but we must be careful before placing confidence in an individual or a body who, it seems, only too often loses confidence in himself and the art he practices. Medicine as now practiced by the regular schools is wholly experimental, and each patient is the object for the experiments. Therefore, without further evidence than this, would it not be better to turn to such simple, natural, and most efficacious means within the understanding of all, which Nature has so kindly provided for the maintenance of our physical health and for the cure of our diseases? By these I refer to the proper and intelligent uses of that great purifier water, pure and correct diet, and right and temperate habits of living. To gain a knowledge of all these means will require some study, I will admit. We may even throw ourselves open to the accusation of being "cranks;" but the end will more than justify the means, as I can state from experience. It should be the effort of all, and especially parents, to gain at least some insight into the laws that govern our being, and by their obedience to maintain health and happiness in our homes. If, by the reading of this little letter, but a faint appreciation be gained by only a few, of the beneficial effects that would follow, the many heartaches that would be spared, and the good that would come to humanity, by a more general study of and adoption of the laws of health, I should feel amply repaid for the writing. The scope of such a letter is limited, however, and it takes long to convince; therefore, friend Root (for we are friends in one cause—the good of humanity), may I suggest the establishing of a health column in your already valuable journal, where such subjects can be discussed by your readers? Then will your illness become as an angel's visit, a message from God, prompting you to the spreading of the gospel of health. The work will be a good one, and the reward ample in the blessings of many thankful hearts. In justification of what I have said with regard to doctors and drugs, I add a few quotations from men who have made the profession their life study, and may therefore be regarded as authoritative in the matter.

Prof. Alex. H. Stevens, of the New York College of Physicians and Surgeons, says: "The older physicians grow, the more skeptical they become of the virtues of medicine, and the more they are disposed to trust to the powers of Nature;" and: "Notwithstanding all our boasted improvements, patients suffer as much as they did forty years ago;" and again: "The reason why medicine has advanced so slowly is because physicians have studied the writings of their predecessors instead of Nature."

Prof. Jos. Smith, M. D., of the same school, says: "All medicines which enter the circulation poison the blood in the same manner as do the poisons that produce disease;" and: "Drugs do not cure disease; disease is always cured by the *vis medicatrix naturæ;*" and again: "Digitalis has hurried thousands to the grave."

Prof. Alonzo Clarke, M. D., of the same school, says, with many other condemnations of the methods of his school: "All of our curative agents are poisons; and, as a consequence, every dose diminishes the vitality."

John Mason Good, M. D., F. R. S., has to say on the subject, "The science of medicine is a *barbarous jargon*, and the effects of our medicines upon the human system in the highest degree *uncertain*, except, indeed, that they have *destroyed more lives* than war, pestilence, and famine combined."

James Johnson, M. D., F. R. S., also says: "I declare, as my conscientious conviction, founded on long experience and reflection, that, if there were not a single *physician, surgeon, man-midwife, chemist, apothecary, druggist,* nor *drug* on the face of the earth, there would be *less sickness* and *less mortality* than now prevail."

Such extracts as these might be prolonged to fill a very respectable volume; but those I chose I think are sufficient to answer the purpose; and those who are interested in finding more can without difficulty do so.

Droit et Avant.

[My good friend, I rather expected such letters as this when I decided to defend the average family physicians of our land; and I thank you for the many good points you make in your letter; but you are certainly too severe in your criticism of our physicians, and you are putting the matter too strongly. Permit me to take up, good-naturedly, the other side a little.

You speak of the "natural means which Nature has provided to keep us in good health." Now, I should be very glad indeed if Nature has provided for all emergencies; but, my dear sir, what does Nature do for us when failing sight comes on from old age? Did she ever give us any thing like a pair of spectacles, or even suggest such *unnatural* means of assisting waning vision? Spectacles are not drugs, it is true; but I do believe that medicine often gives us as marked relief as a pair of spectacles gives a man who has lost his own and can go on with his work. Some years ago, through catching cold I had a coughing-spell every night. It not only kept me awake, but my wife and the rest of the family. I knew, without being told, that such a severe cough would result in real harm if not checked. In one sense the cough was simply Nature's means of removing the obstacle, or, if you choose, Nature's protest. I finally went to the doctor. He compounded a cough syrup that stopped the cough *instantly*. I did not cough once more, and I did not feel like coughing. In fact, I have never had such a cough since, that I can remember. Again, while at Dr. Miller's I was taken with sickness at my stomach, and vomiting. For two days the good friends did every thing in their power to assist me. The markets were ransacked for something I could eat without throwing it up. I finally decided to take the train, even though I was unfit, to meet an appointment. While at the station the sickness returned, and I was in a real dilemma. Finally my good friend Dr. Miller said, "Look here, Mr. Root; I shouldn't wonder if extract of Jamaica ginger would stop this constantly recurring tendency." As soon as he mentioned it I called myself stupid for not having thought of it before. We went into a drugstore, and I feared I should vomit before the druggist could pour some into a little water for me to drink. It removed the difficulty at once; and only once during the afternoon did it recur while I was traveling. A few drops of the ginger in water relieved me again; and by supper-time I was ready to eat a tolerably decent meal. Now, my stomach had got into that fashion of throwing up every thing, just exactly as I had got into the *fashion* of coughing. The thing had "got a going" in the wrong direction, and I am not sure but that one might cough himself to death, or vomit himself to death, if some remedy were not provided. I am sure our readers recollect many personal experiences of their own, similar to the ones I have mentioned. Now, I feel that these remedies are as natural and as harmless as the spectacles that help the man to go on with his work. I believe, also, that bromide of potassium relieved me in the same way, and *helped* Nature to go ahead with her building-up, instead of hindering her. Why, how *could* one build up when his unhinged nerves would not permit him to have a moment of sleep?

I was very much interested in this matter, for I was prejudiced against every kind of quieting-powders. In fact, I was prepared to insist that there must be some objectionable thing about a drug that could do such wonders. The doctor gave me a full dose right in the day time, to convince me that it did not produce sleep, but only made sleep possible by quieting the nervous disturbance; and in discontinuing the use of it, as I have explained to you, I felt no inconvenience whatever.

Another thing, my good friend, your communication is full of positive assertions. You say, "By the use of poisons, Nature can be diverted from her own wise work of dispelling disease." Now, if you call extract of ginger and the cough medicine "poisons," why not call the spectacles poison also? The latter is certainly as unnatural as the others. The doctor declared the bromide to be a harmless and innocent medicine; and I hope you will excuse me for saying that I have as much faith in *his* wisdom, especially after my experience, as I have in your own. I know what many of the good men you quote have said; and I think it may be that some of them are right; notwithstanding, I would unhesitatingly advise the help of a trusty physician when you are suffering. I am well aware people sometimes get a mania of taking medicine the year round; and I know, too, that other people live and get along nicely, for months or even years, without taking a particle of what may be called medicine. I can not but think that your last quotation, from James Johnson, is harsh and uncharitable; and when I hear such wholesale denunciations, it makes me fear that the writer judges others by himself. Surely, I have reason to agree with you in what you say in regard to pure water; but, my dear friend, pure water did not help my cough; and with the other trouble I have told you about, a single swallow of water acted like poison. Some of the water-cure folks remind me of the good brother who said that the Bible is the only book we need in the world. Does it not become a wise man to "prove all things," and "hold fast that which is good"?

In regard to a health department in our journal, the difficulty is, so many things of importance are constantly crowding on us that Ernest and I are continually called upon to decide which among great piles of letters are valuable and will do most good.]

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

QUESTION 195. *I have a two-story 10-frame L. hive super filled with good drone comb. Would you melt the drone comb and put in foundation, or put on a queen-excluder and keep the drone comb?*

I save the drone comb and use a queen-excluder.
Ohio. N. W. A. B. MASON.

I would use the queen-excluder, and keep the drone comb.
New York. E. RAMBLER.

I would put on the queen-excluder and keep the drone comb.
Wisconsin. S. W. E. FRANCE.

If the comb were even and straight, I would put on a queen-excluder.
Illinois. N. W. C. MRS. L. HARRISON.

Keep it—but, preferably, divide it between several supers instead of putting it all in one.
Ohio. N. W. E. E. HASTY.

If you are running for extracted honey, put on the queen-excluder, and the drone comb for extracted.
Michigan. S. W. JAMES HEDDON.

I would put on a queen-excluder and keep the drone comb, as they are just as good for extracted honey.
Louisiana. E. C. P. L. VIALLON.

I would make wax of the drone comb, and put in foundation; for, so far as I have experimented with perforated zinc, it is not absolutely queen-excluding.
Vermont. N. W. A. E. MANUM.

Put on an excluder, every time. This drone comb is as good to hold honey as any other comb; and if the queen is kept from it, it can be used for no other purpose than the storing of honey in it.
New York. C. G. M. DOOLITTLE.

I would use the drone comb, and keep the queen away by the use of the excluder. The excluder is good, any way.
Michigan. C. A. J. COOK.

Melt the drone combs, unless you are short of combs. Put in foundation, or, still better, have good natural worker combs built.
Ohio. N. W. H. R. BOARDMAN.

I want no more drone comb in my apiary than is necessary in my estimation; but, having a queen-excluder, it is the most profitable for you to use your drone combs.
Ohio. S. W. C. F. MUTH.

I would melt it up, for fear it would some day turn up where I did not want it. If you will promise to look after it yourself, I have no objection to your using it as you propose.
New York. C. P. H. ELWOOD.

I'd melt up the combs unless I wanted to use them for extracting. For extracting they're just as good as any, aren't they? If the queen can't lay in them, I suspect I'd use excluders anyhow, for extracting.
Illinois. N. C. C. MILLER.

I would keep all good drone comb, but I would not use supers filled wholly or even principally with drone comb. Sometimes, even when crowded for room, bees will not put honey in drone comb because they want the queen to lay in it.
Illinois. N. C. J. A. GREEN.

I would use the excluder, and save the drone combs. I have concluded to let my bees build their own combs instead of giving them full sheets of foundation, especially when honey is cheap; and when they make drone comb I will place it in the supers above excluders. Excluders are cheaper than foundation.
California. S. R. WILKIN.

I prefer mostly worker comb, upper and lower story. Bees store honey a little more readily in worker comb than drone comb; still, I have kept more or less drone comb because I did not like to lose a season or part of a season in getting it changed over, though no doubt it pays to work it out gradually.
Wisconsin. S. W. S. I. FREEBORN.

[Well, friends, the replies start out with a surprising degree of unanimity. Friend Manum, however, objects, for the reason that the perforated zinc is not absolutely queen-excluding. I believe, however, that most of the friends have found it pretty nearly so. Friend Doolittle contends that drone comb is as good to hold honey as any other. Friend Elwood employs a good deal of hired help, and he has had some experience in having the help either forget or ignore the instructions he has given them; and J. A. Green suggests that, after the bees have prepared the drone comb for the queen to lay in, they will let it remain empty, even when crowded for room. I think very likely this may be true, although I hadn't thought of it before. Friend Freeborn strikes upon the same point, and so we may conclude there must be something in it. I remember of using quite successfully all the drone combs we could scrape up for the second story, for the extractor.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A CARD OF THANKS.

Friend Root:—Many thanks to you for your kind publication of Cullinan's letter, p. 762; also please accept thanks for your highly complimentary footnotes; and, indeed, the gratitude the bee-keepers have shown toward me for my services in the last 37th General Assembly have been to the extent that I fear is undeserving; for you know that, had I not met with many warm friends in the cause, my efforts would have been futile; and my heart swells with pride when I reflect that the solid representative men of the State stood side by side with me to elevate the apiarian industry of the State above its present level, and make it one of the important industries of the State and of the country. It now remains to be seen whether or not the representative bee-keepers will come to the rescue and make our first publication one of such importance as will insure the continued indulgence of our legislatures, and the increased prosperity of our pursuit. Any suggestions from you or your many readers would be most happily received. J. M. HAMBAUGH.

Springfield, Ill., Oct. 16.

SMUTS IN WHEAT.

Prof. A. J. Cook:—In this section of this State we find a good deal of smut in our wheat. At a farmers' meeting the question came up, What causes smut? Will this smutty wheat grow smut again? As you are so kind as to answer others, please answer this in GLEANINGS.

Scotts, Mo., Sept. 11. J. F. LONG.

It is not exactly safe for one to advise or instruct out of his own line of study; but I can safely answer the questions asked by Mr. Long, in part at least.

Smuts in wheat, or in any plants, cereals, or otherwise, are really simplest plants or fungi. They grow from seeds called spores, just as higher plants do. These spores are very minute, and so often escape attention; and the non-scientific man thinks the fungi must come spontaneously. The scientist, on the other hand, knows that all life comes from germs, seeds or eggs. Thus these smuts do not spring forth spontaneously any more than fireweed comes in similar manner on the site of the burning brush-pile. In both cases the seeds preceded the plants, which by germination and development they produced.

Like higher plants, fungi must have the pre-existent seeds, and the suitable conditions, or they will not spring forth. This year, wheat smut seems to have met both these conditions, as it is quite prevalent all over the country.

There are two kinds of wheat smut, as I understand it. One receives the spores from the seed. In this case soaking the seed in blue vitriol kills the spores, and tends to prevent the smut in the succeeding crop. Because we have smut in our wheat this year makes it more probable that we shall have it next year, as the spores are now present. But it does not follow that we shall. The spores may be killed or we may have unfavorable conditions of weather next year, and so no smut, or very little, will be produced.

The common puffball is a fungus, and the fumelike emanations as we press one consist wholly of the myriad spores. Think of the crop if each spore developed! The earth would be carpeted with them. But not one in a billion grows, and so puffballs are of rare occurrence.

It is to be hoped that, next year, the conditions for wheat-smut development will be absent; but in the meantime it will pay to do our part by trying to destroy all the spores in the seed before we sow it. With no spores there can be no smut, even with the most favorable season for smut-growth. A. J. COOK.

Ag'l College, Mich.

A CARD OF THANKS FROM ED. BERTRAND, EDITOR OF THE REVUE INTERNATIONALE.

Dear Friend Root:—I wish to thank you very heartily for the engraving of my photograph which you sent me by friend Dadant, as well as for the publication of my biography in GLEANINGS. It is an honor, and a testimony of kind fellow-feeling which I fully appreciate. I also wish to congratulate you on the beautiful execution of your reproductions by phototype. Friend Cowan wrote to me: "GLEANINGS has a capital portrait of you," and he understands it, as he publishes engravings also. The fact is, you have an establishment wonderfully planned and complete. It is now fourteen years since I first read GLEANINGS and saw your work, so useful, progress and increase year by year. I congratulate with all my heart on your success, and on the services which you have rendered and will still render, I trust, for a long time to come, to apiculture.

Believe me, dear friend Root,
Yours faithfully,
ED. BERTRAND.

Nyon, Switzerland, Oct. 8, 1891.

[We were very glad to do honor to the most distinguished and progressive bee-keeper, as we believe, in France or Switzerland. Such cordial fellowship of feeling is appreciated on our part. The phototype, or half-tone portrait, as we call it, can not help being true to life. We Americans, you know, have a just pride in the execution of this class of work.]

TARRED PAPER; DOES IT AFFECT THE FLAVOR OF HONEY? HOW IT AFFECTED APPLES.

I am inclined to take sides with Mr. Bruce in his statement on page 707, as to the cause of the "terrible flavor" of his honey, and for the following reason:

Two years ago I had a few barrels of fine Baldwin apples; and, wishing to keep them out of doors as long as possible in the fall, I rolled them on some posts and covered them with tarred paper. As the weather became cold I put them into the cellar, and soon after sold the lot to one party. In a few days he called on me and said there was some trouble with the apples—they smelled and tasted badly. I went to look at them; and the moment I put my nose into the barrel I said (to myself) "Tarred paper!" and after cutting into several and tasting of them I was even more convinced of the cause of the trouble. Of course, I replaced the apples with some picked and put into barrels at the same time, but which had not been covered, out of doors. Now, the paper was laid on the barrels, and this out in the air. Would it not seem as if it would affect honey if put into a close hive, and where the heat would more or less affect it?

EDMUND K. BELCHER.

Randolph, Mass., Sept. 21.

[Friend B., I am greatly surprised. We have used tarred paper in the bottom of chaff hives for twelve or fifteen years, but never before had a complaint. We have also used tarred paper for fruit-rooms, and for almost every other purpose. I do remember that, when our fruit-room was quite new, there were a few complaints to the effect that apples smelled of it. The bad odor, however, was entirely gone in a few weeks, and now there is no trace of it.]

SILK-MOTH LARVA.

The large green spinous caterpillars found by you on the spirea at Medina are larvæ of our largest American silk-moth, *Platysamia Cecropia*. There are six larger spines, or tubercles, which are waxlike, and orange at the end, two on each segment just back of the head. The larva gets to be four inches long, spins a large loose cocoon to the tree or shrub on which it feeds, and the next June or July comes forth as an immense brown moth, more beautiful even than the larva. The larvæ feed on apple, maple, cherry, basswood, azalea, spirea, etc. They are never abundant enough to do serious harm. You ask whether this larva is venomous. I assure you that it is as harmless as a kitten—yes, more harmless, for a kitten may scratch; but this one can not do even that.

You asked in last GLEANINGS how the cocoons are spun. If you had put these beautiful green larvæ into a glass can, and fed them a few days, you would have seen the whole operation, for these caterpillars were nearly grown, and hence nearly ready to pupate, and they always spin a cocoon before they pupate. The spinning is done simply by a to-and-fro motion of the head, the sticky thread of silk being forced out, and stuck as the head reaches the limit each time. Thus if the thread is a mile long, the caterpillar moves its head a mile in all in this back-and-forth motion, much as we may hold our hand still and move the end of a finger back and forth. The first framework is frequently formed by spinning to twigs or coiled leaves.

The insect sent by M. W. Strickler, York, Pa., is the saddle-back caterpillar, *Empretia stimulea*. I think I described it with figure, in GLEANINGS, on p. 902, 1887. The caterpillar is rich brown, with hairy spines at head and tail and along the side. A green saddle-like patch adorns its back. This is centered with a deep red oval spot. The hairs which deck its body sting like nettles. This is one of three or four of our caterpillars that can hurt us. This, however, is not serious. The moth is rare. It is velvety, and rich reddish brown in color. This caterpillar feeds not only on the rose, but on apple, cherry, grape, raspberry, currant, Indian corn, and sumach. It comes so late that it does but little harm. Plants suffer very seriously if defoliated in June or July; but in August and September the damage from being stripped of leaves is not great. The leaves are nearly ready to go, any way. Again, this beautiful insect is too rare to do much injury, even if it came early in the season. There are parasites that work on it that will almost certainly hold it in check. This is one of the silk-moths; and all of those sent by Mr. S. had spun cocoons in transit. The cocoon is sub-globular. They leave the plants and seek some crevice in which to pupate.

Ag'l College, Mich., Sept. 22. A. J. COOK.

WATER FOR BEES; GOOD CANDY FOR SPRING FEEDING.

Of late I read in "Langstroth on the Honey-bee" all about water for bees in February, and so on till spring, to promote brood-raising; and now I wish to ask if, by placing candy over the frames, say in March, that will give them water enough. Mr. Alley says, "Make candy by mixing powdered sugar and good honey, and place it over the frames, on a wire-cloth honey-board, so that the bees will suck it through the wire cloth," and one pound will keep a large swarm alive two weeks; besides, it's a good way for stimulative feeding in spring. Question: Will the water in the candy be sufficient moisture for the bees to promote brood-raising?

Ludlow, Vt., Oct. 9. A. P. FLETCHER.

[Some years ago it was thought necessary to provide water for bees when wintered in the cellar. Some results, however, seemed to throw some doubt on the matter, and finally the Michigan Agricultural College, under direction of Prof. Cook, tested the matter thoroughly, giving half of the bees in the winter repository water, and the other half none. As those with no water came through winter in the best condition, I believe that, since then, water in winter has been generally dropped.] A. I. R.

FASTENING STARTERS IN FOUNDATION WITH PASTE.

I put my eight section boxes into my frame, then set my frame down, bottom side up. I cut my comb or comb foundation into the sizes I wish, then I take some paste made of hot water and flour and keep it a little hot, and about as thin as warm honey. I now take my cut starters of nice comb or comb foundation in my fingers, and dip lightly one edge into paste, then place it in the section; press down very lightly, and so keep on. I like this better than a fastener. Have you tried it?

My smoker throat, or windpipe, as you may please to call it, got gummed up. I took a feather from a goose's wing, and warm water, and used it as a swab, and soon had my smoker getting its breath all right. SAM'L LANGFORD.

Buckskin, Ind.

LIPPIA REPENS ON THE MEDITERRANEAN.

Several years ago I observed, in several fields bordering on the Mediterranean, a little plant with which you are possibly acquainted—*Lippia repens*—which I found to be charming, for it formed a real carpet of white flowers. I planted some at home; and when the blossoms were out I was pleased to see many bees at work on the little flowers. I believe that I may say that this is one of the plants which the bees will be glad to visit in preference to many others. I have, in my garden, thyme, vanilla, portulacca, and other plants, but they are not frequented as is the lippia. Continuing the comparison which I have made above, on the carpet of white flowerets there seemed to be also a carpet of bees, and that from morning till the end of the day. If one remembers that lippia begins to blossom at the end of May, and that in September it blossoms again, and that the blossoming is full during the greatest heat and the most severe drouths, it will seem that this little plant is very valuable to bee-keepers. Perhaps you know this, and perhaps I overestimate a little the services which lippia may render to the apiculturist; but as I had occasion to write on other matters I thought it would do no harm to add a few words, though it may be nothing new to you. CHAS. BIANCONCINI.

Bologna, Italy, Oct. 6.

CHICORY AS AN OREGON HONEY-PLANT.

The plant sent by Mr. Hilton is common chicory, *Cichorium intybus*. It is introduced from Europe, and is common in the East as well as in Oregon. It is a composite plant, and so of the same family as goldenrod, boneset, and asters. We may expect nearly all the composite plants to secrete nectar in favorable conditions, so need not be surprised at what Mr. H. says. The root of chicory (or succory or cichory, or names of this same plant) is often used as a substitute for coffee. The showy blue flowers open only in the morning or on cloudy days.

Agricultural College, Mich. A. J. COOK.

LADIES' CONVERSAZIONE.

I have been so very busy that I have not found time before this to answer the questions of Mrs. Tittsworth. Yes, we carry our book from hive to hive, just as we do our smoker and chisel. If we are at work near together, the book is laid on a hive near us; then Dr. Miller makes his own entries and I make mine. But when he is at work at one end of the apiary and I at the other, then it is somewhat more difficult to manage, and we have tried different methods. Quite often I call to him, and he makes the entries, or the reverse. But I confess I don't just like this way, as by its use we have occasionally missed making a record. I like better the plan of having a small memorandum-book tied with a good strong string to my apron, so that I can't lose it, making the records in this, then copying at night each day's work in the large book. Of course, one of us uses the large book through the day.

There is only one objection to this plan that I know of. I always want to know the previous condition of the colony I am going to work at, and for this I need the large book. It very often happens for some reason that this may be necessary. For example, there may be a young queen in the hive that needs clipping, and a little caution is necessary not to give too much smoke, or you may have trouble in finding her To obviate this difficulty I write the numbers in the memorandum-book, leaving space enough at each number for any entry I may wish to make. Then I take the large book, and glance over the records of the different colonies. If there is nothing unusual I leave the numbers as they are, making no memorandum. If I come to one that is queenless, I write "qless" after the number in my small book, using different characters to mean different things, no matter what, so I understand them. If I come to any thing very complicated, I make some mark that will refer me to the large book. It takes but a very little time to get my small book ready, then I am quite independent.

We have tried clipping queens in the way you mention, but have not made a success of it. Our queens will not keep still enough.

In reply to Mr. J. F. McIntyre, I would say that we allow one page of the book to three colonies, the page being 13 by 5½ inches. That gives us ample room for all records, as we have a new book each year.

I indorse what Mrs. Axtell says about small chips used as smoker fuel. I have used them, and found them very good when perfectly dry.

We were so very busy getting our honey ready for market that some of our feeding was not done until so late that Dr. Miller thought best not to feed sugar syrup, but concluded to feed unfinished sections. For this kind of feeding we found our reversible bottom-boards a good thing, as the two-inch space under the frames gave room to put the sections directly under the bees. We filled a wide frame with these sections, then slipped it under the brood-frames and closed the entrance with a separator cut to fit, leaving room at each end for only a few bees to pass at a time. Sometimes the space was a little too shallow to let the sections under. In that case both wide frames and sections had to be cut down a little. A few brood-combs filled with honey were used in the same way. To hurry matters, sometimes the sections were reversed as soon as the upper side was emptied.

We first uncapped any honey that was sealed. I don't know that I ought to call it uncapping, as we simply struck the cappings a few times with a wire hair-brush. It did the work nicely and very easily, and in much less time than we could have done it with a knife.

Marengo, Ill., Oct. 21. EMMA WILSON.

PREPARING FOR WINTER.

We had very little surplus. Bees worked on both alsike and white clover, but not much was accomplished after raspberry-bloom was gone. As soon as buckwheat blooms we remove the white honey and diminish the surplus room. This makes fewer boxes to handle and to be soiled if there is no fall honey. It saves heat and causes more honey to be stored below, ready for winter. For the same reasons it is best to take off all boxes quite early. As we take off the honey we examine the lower story, frame by frame. All frames not needed are removed, being replaced by division-boards and chaff. The number of pounds of honey is noted, small sticks laid across the frames, and a porous cloth laid over them. Turn back one corner for feeding. We prepared syrup by heating 10 lbs. of sugar with 4 quarts of water and 3 lbs. of honey. As we could not buy feeders we filled two-quart glass cans and inverted on grooved boards. Three or four can be placed in a hive at once, making enough for winter. As soon as the feeding is done, put on chaff cushions to save the heat. We have no pure Italians, but the bees with golden bands are the ones that are wide awake, and ready for work or—robbing! It was in their hives that we found honey.

STRAWBERRIES.

I should like to tell you, Mr. Root, how GLEANINGS improved our bed. The whole bed was kept mellow and clean. I went three times over one half, placing the runners six inches apart, as GLEANINGS advised. I also placed a chunk of earth on each plant. That part of the bed has now an even stand of plants, in spite of drouth. The other half looks ragged. The plants are thick in some places, with none at all in others. While it is an awful lot of work, it pays. Have the bed smaller, if need be. It also pays to clean out an old bed, as it will make a longer season than a new one. Ladies, please write on other subjects while gentlemen discuss frames.

MISS LIBBIE WILLIAMS.

Delavan, Wis., Oct. 3.

MAKING MONEY WITH CHICKENS—T'OTHER SIDE.

Friend Root:—You speak very enthusiastically in GLEANINGS about the poultry business; but I should like to give you a glimpse of my experience. I have tried now for six seasons to raise a flock of geese; and the most that I ever had to reach maturity was seven. Last spring my geese laid 30 fine large eggs, and all hatched but two. I had as fine a lot of goslings as you would wish to see; but they got cramps, or something, and about half died, and the rest of them dropped off one by one until only seven are left. I set several hundred hens' eggs. About half of them hatched, and I had about 250 chicks. Well, I worked with the chicks until I did not know what more I could do for them, when some of them began to droop. Upon examination I discovered a few lice. I set to work and greased them, as so many recommend. It killed the lice—yes, and the chicks too. Then I tried insect-powder. This seemed to do pretty well for a time; but it seemed the vermin soon got used to it, and paid no more attention to it, but kept on killing my chicks until now I have only about 50 left. How is that for a business? 'Tis true, that eggs are 25 cents per dozen; but how often does this happen? They have not reached so high a price here for several years. Well, to tell the truth about it, I am glad that they scarcely ever reach so high a price. What would poor hard-working people do who live in the city, who can hardly afford to pay *ten* cents per dozen? It is with the poultry business as with any other—all have their bright and their dark side; so we must try again and be thankful for what we do have. MRS. EDW. SMITH.

Carpenter, Ill., Oct. 21.

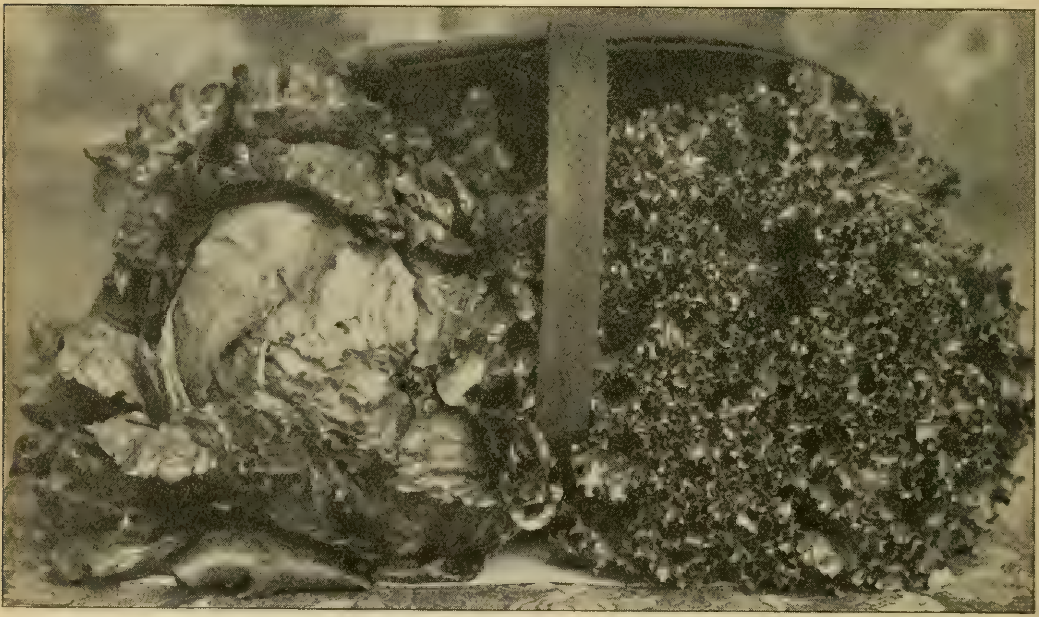
[My good friend, I well know the difficulties in keeping poultry successfully; and may be, if I had a chance to try it, I should have as many mishaps as you do—at least, to start with. But do you not know that we meet similar difficulties in all rural industries—in fact, in almost every industry in life? But men and women do succeed in overcoming just such difficulties. We have fought down the potato-bugs, and pretty nearly killed them out. Fruit-growers have mastered the codling moth, and our experiment stations have just solved the problem in regard to scabby apples. W. I. Chamberlain, of whom I have told you, has, even this present season, trees whose limbs are breaking down with the most beautiful, perfect, fair, round apples I ever saw. Nobody else has any within miles—or, at least, none of any account. At the present time, in almost every neighborhood you can find people who have mastered the obstacles, and are making a success with poultry, bees, small fruits, apples—yes, and even corn, potatoes, and wheat. Where there is a will there is a way. If it were not for these drawbacks we should never be able to get the prices we do. You speak about poor hard-working people not being able to have eggs when they are 25 cents a dozen. Well, then I suppose they must go without them. You have heard the lament that has come up so frequently of late, that "farming does not pay." Now, my good friend, whenever prices come up to a point where farming *does* pay, the poor must pay more for these very things that farmers produce. So you see that what is somebody's else loss is another's gain, and therefore affairs are not in such a very bad state after all. And, by the way, to get right down to it, this is a pretty good country; or to go a little further, a pretty good world to live in. In other words, is it not true that God knows best what is for our greatest good and highest happiness?] A. I. R.

THE POSSIBILITIES IN THE GARDENING LINE IN THE STATE OF WASHINGTON.

A REPORT FROM ONE OF OUR BEE-KEEPING FRIENDS.

Friend Root:—Knowing that you are interested in fine vegetables I send you a photo of two heads of lettuce, raised from seed bought of you. The one on the left side is New York; the other is Grand Rapids. The New York weighed 3 lbs. 4 oz.; the other measured 18 inches across as it stood in the garden, and weighed 1½ lbs., and was a beautiful plant. I sold $45 worth of the New York, raised on five rods of land; and have 556 Mammoth King onions growing on the same ground. Some of them measure eleven inches around the bulb. I owe to GLEANINGS a small hint on transplanting that I put to practical use. I do not know what the possibilities of this country may be. I have a photo of eleven Sharpless strawberries that filled a common berry-box full, and the largest berry measured nine inches around. I do not wish to boom the country, for it has already been done quite sufficiently. Seeds bought of you have given the very best satisfaction. ALBERT McCAY.

Olympia, Wash., July 17.



TWO HEADS OF LETTUCE, NEW YORK AND GRAND RAPIDS, RAISED IN WASHINGTON.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

RAISING WHEAT.

Some of you may wonder what wheat-growing can have to do with high-pressure gardening. Well, you listen to what I have to say, and see if you do not think it has a great deal to do with it. In riding on the cars a few days ago I was talking with an old farmer who occupied half of the seat, about the crops we saw out of the window. He told me a story that has been much in my mind ever since. The story was something like this:

He lost enough wheat last year by the use of a worn-out drill to buy a *brand-new machine out and out*. The drill was not exactly worn out either; but the drill-*teeth* were worn until they were so dull they would not stay in the ground. The consequence was, a great part of the wheat was left uncovered. He did not notice it particularly until the field was all sown, then he went on it with a harrow, and tried to harrow it in just as he would if it were broadcast. This might have made matters some better; but a neighbor of his was in the business of raising turkeys considerably; and the turkeys took in the condition of affairs about as soon as he did. The consequence was, the stand was so poor he very likely lost enough to buy a new drill. The only remedy was to have plowed it all under and seeded it again; but he did not know how bad it was until the wheat came up.

"Well, my friend, I suppose, after such a lesson as the above, you now own a brand-new drill of your own, of the most approved and latest pattern?"

"Why, no," replied he; "I lost so much on that crop last year that I hadn't any money to buy a new drill with."

"Well, what did you do?"

"Why, several of us went and told the man who owned the drill we used last year that we could not afford to pay him 25 cents an acre unless he took off the old drill-teeth, and got a set of new ones. He accordingly did it, and this year my stand of wheat is all even and regular, and not a grain of it was left uncovered."

Think of it, friends, and consider such a state of affairs. A set of drill-teeth costs only a little; and yet the owner of the drill, and the farmers who employed him, were such a stupid lot that the thing went on until losses resulted such as I have told you. They paid 25 cents an acre for the use of a drill that, on one single field, damaged them to the extent of fifty or sixty dollars. Just the day before this talk occurred I had been sowing that field of rye around the windmill. The ground was in beautiful condition, as I told you, after the potatoes were dug and the harrowing we gave it. A little rain fell during the night, just before we were ready to roll the field the last time. I told the men I was afraid the roller would compact the soil a little too much. But the rain had made the lumps so soft that they mashed up so beautifully we concluded to go on and roll it. This made the ground so hard in some places that our dull drill-teeth slid over the top instead of going down into the ground; and the first I knew a flock of chickens belonging to a neighbor were following the drill, picking up the rye that was uncovered. Now, I do not like that kind of work. We use this same drill for sowing corn, beans, beets, spinach, peas, and the greater part of our garden seeds. But of late, when they sow peas and white beans, I have noticed quite a few of the peas and beans in sight, especially after we have a light rain to wash the light seeds clean, so the eye can see them. This has happened so many times that I have had a man go over the peas and beans with a rake, covering those that were left in sight. Please remember, we sow very small patches at a time, so as not to flood the market and break down prices; therefore it was not a very big job to go over the strip with a rake. Well, I noticed the matter was getting somewhat worse; but it did not occur to me that it was because the drill was becoming dull. I think the drill cost about $75, perhaps five years ago; and we have let it out at 25 cents an acre until we have got, perhaps, $40 back on it. No farmer who uses it has complained that the teeth were dull, and so it has been allowed to go. In relating the circumstance to another farmer, he said that, if the ground were just as it ought to be, he preferred the drill with rather dull teeth. New teeth, he said, would often go *too* deep, and thus defeat us in another direction. I then suggested that there should be some gauges on the teeth that would let them go just so deep and no deeper; and at the Summit County fair I saw just this arrangement attached to just such a drill as we are at present using. It seems to me it will certainly pay for market-gardening, if not for raising wheat. Then we can have the teeth sharp.

Three or four days after, I visited T. B. Terry's farm, and looked over his wheat. It is the most perfect stand I ever saw. In fact, his entire fields look almost like rows of little onions set just so far apart. The space left where the drill turns and makes another "bout," was so exactly like the distance between the drill-teeth that one could hardly tell where the drill had gone the other way. Another thing, there are no lumps in friend Terry's wheat-fields. As I could not find a lump on the surface of the ground I dug down between the rows of wheat to see if I could dig up any lumps. Although the ground was so fine and mellow I could put my hand in it all over, it was just as fine as far down as I could reach. Friend Terry was absent, and so I interviewed his son. He said his father always drove the drill; and the ground and every thing else must be just according to his notion before he would go ahead with it. Now, friend Terry not only has the finest and best tilled fields I ever saw, but he has the most *perfect stand;* in fact, there is nothing to compare with it in either Summit or Medina Counties. Friend Chamberlain's 36-acre wheat-field, thoroughly underdrained, comes the nearest to it of any I have seen. But there were some lumps in sight, and the stand was not as perfect as Terry's. Friend Chamberlain has been on his farm only a year, remember, and this, possibly, makes a vast difference.

After I had looked at the beautiful stand of wheat, and enjoyed it as it showed to excellent advantage in the rays of the declining sun, I turned to the clover-fields that covered every part of the farm the wheat does not cover. I certainly never saw any thing in the way of clover in October that would compare with it. The stand of clover was even, the leaves large, thrifty, and of such a bright green that it was a sight to look at. I spoke to the son:

"Why! wouldn't that clover just make a regular '*picnic*' for any kind of stock? Now there is such a tremendous amount of feed there, I suppose a great many farmers would turn their stock right into it."

"Well, they might in some places, Mr. Root, but they would not in this neighborhood, I tell you. They have learned better."

Doesn't this account largely for the beautiful mellow soil with no lumps, and with such wonderful fertility? Many of you have doubtless read Terry's articles in regard to the preparation of his wheat-ground. You know how he keeps at it until the lumps are all mashed, and the whole surface thoroughly fined up and all alike. Well, in riding across the country and looking for wheat-fields without lumps, what do you think I saw? Oh dear me! In some places the lumps were as thick as they could lie, and some of them almost as big as your head. How should one expect to get a paying crop of wheat under such circumstances? This getting a perfect seed-bed, I suspect, is a work of years. In the first place, we must have perfect underdraining. Then no stock must ever set foot on the ground when it is soft; neither must tools be allowed on the ground when it is too wet to work. After this, turn under regularly great rank growths of clover, and your soil will begin to get mellow and soft and fine—yes, even though it is naturally some of the most unpromising land to be found.

FINDING WHERE YOUR UNDERDRAINS ARE.

Much has been said about keeping a map of all drainage, that the owner may at any time know where to dig to find a tile. We have already experienced considerable trouble, and sometimes wasted several hours of hard work, in finding a certain line of tile. I think it was the *Ohio Farmer* that said lately it is a good plan to mash up all the broken tile, and strew the bits along the top of the drain after it is filled up. No matter how much you cultivate and plow the ground, these bits of broken tile will, more or less of them, be visible, and indicate where the tiles are laid. There will always be more or less broken or soft tile, and I do believe this is the very best use that can be made of them.

STARTING A BOOM ON CERTAIN PRODUCTS BY LOWERING THE PRICES.

Where one sells things at retail by sending a wagon around town as we do, a little decline in prices may make a big difference in the amount of sales. Lima beans have lately been going slow at 10 cents a pint. Well, the frost has not killed ours yet, even up to this late date, Oct. 22; therefore I told the boys two days ago that we had better put the price down a little, and directed those on the wagon to carry the beans in at every house where they stopped, and announce that they were only 8 cents instead of 10. How much difference do you suppose a drop of 2 cents made? Why, they sold *four times as many*, and came pretty near stripping the poles of all that were large enough. Perhaps *showing* people clean boxes of beans just shelled, good measure, had much to do with it; for we often push any thing we happen to have a surplus of in just this way.

TEN CENTS A POUND FOR SPINACH.

A few days ago I asked them why they did not carry any spinach on the wagon. They said nobody wanted it at this season of the year because there was so much other stuff. Last Friday, the 16th, however, I noticed our Extra Curled Bloomsdale spinach was growing so very thrifty that some of the heads with their rich dark green were really a sight. By the way, a few seeds were in the seed-drill when we made our last sowing of bush lima beans. It was on a piece where we had plowed under a heavy growth of strawberry-plants; and this, perhaps, accounts for the great luxuriance of the spinach. A basket was fixed in neat order, and put on the wagon, and I told them to try it at 10 cents a pound; and if it did not bring 10 cents to come back to the old price of 5. Its beautiful attractive appearance and rank luxuriance did the business. It was gone at 10 cents a pound in a twinkling, and this in the middle of October, when, if we had only taken the pains, we might have had an acre of it that could have been sold at a profit at *half a cent a pound*. Of course, a town like ours would not take very much of it; but if such spinach could be put into the city markets, I feel certain that vast quantities could be sold at tremendous prices. I begin to suspect that no ordinary grounds will produce spinach up to its highest notch of excellence. Like many other foliage plants, it wants the richest kind of soil. And, by the way, we always get an enormous crop of any thing after we have turned our strawberries under.

LINSEED OIL-MEAL AS A FERTILIZER.

Our Ohio Experiment Station has just been making some experiments with linseed oil-meal and nitrate of soda as fertilizers for German millet. Both give an improvement over the unfertilized plants; but the nitrate of soda, as heretofore, not enough improvement to pay cost. The linseed meal, however, went away ahead of the nitrate of soda, and this was when it was applied directly to the soil. Now, they say that not more than a third of the fertilizing value of the meal is lost in feeding it to stock; therefore, to use their own words, "Linseed oil-meal offers a far cheaper source of fertility to the Ohio farmer than any of the so-called commercial fertilizers or phosphates."

THE OREGON EVERBEARING STRAWBERRY.

Friend Root:—About a year ago I was foolish enough to invest $2.00 in a dozen of Winquist's Everbearing strawberry-plants. Under the best of care they proved far inferior to common sorts for the first crop, to say nothing of there being no blossoms or berries later in the season. There were no indications of the everbearing property about them. Now, I was led to make this investment from the fact that I knew you had had these plants upon your grounds for some two or more years; and having seen no warning (except a very mild sentence or two in GLEANINGS of two or three months back) I concluded they were at least not a very big humbug, and sent my money only to become a little richer in experience and more cautious of mankind in general. In a word, I look upon it as one of the worst humbugs that has reared its head in respectable journals in a long time. The only thing that can be said in favor of the plants, so far as my experience goes, is that they are good strong growers, throwing up an abundance of dark green foliage, and a tendency to put out runners in profusion. And now, Mr. Root, what can you say in defense? And how are we to account for the silence of all, or nearly all, of those who, in reports during the last year or two in GLEANINGS, have reported purchasing these plants and have failed to report in their favor or against them? Is it a huge "combine"? I will not believe it. D. W. C. MATTHEWS.

Ypsilanti, Mich., Oct. 2.

[Gently, friend M. We have reported each season, since receiving the above strawberry, our success with it. When we first put it out in our rich plant-beds, in a sheltered location, it grew rank, and gave us some of the finest berries before almost any other variety. On account of some new buildings, we were obliged to move the bed while in full bearing. It was taken into the fields, and received the same treatment as our other varieties. Since then it has amounted to nothing comparatively. It is, with us, continually blooming and setting fruit during the fall; but there is not enough of the fruit to amount to any thing, and the plants grow with very poor vigor where they are now, compared with the other sorts. Therefore you see it is difficult for me to either condemn or recommend it. Had I made a report while it was in our rich plant-beds I should have called it a great acquisition; but out in the fields, along with the others, it is certainly not a success in our locality. One or two have purchased plants, and reported favorably; but the general testimony seems to be that it is not a success here in the East. There is certainly no "combine" about it. There is not money enough in it to make it an object, even if any one were so unscrupulous as to *wish* to push a worthless plant. Besides, our experiment stations are always on the alert to expose any deliberate plan to humbug the people. They have recently reported that it seems to lack vigor under ordinary treatment here in the East. You report, however, that you find it a "good strong grower."] A. I. R.

OUR HOMES AND MY NEIGHBORS.

When ye spread forth your hands I will hide mine eyes from you; yea, when ye make many prayers I will not hear: your hands are full of blood.—ISA. 1:15.

Our county jail has been for a long time empty. In fact, since the saloons were banished from Medina, as a rule our jail is empty. As an exception it has an occupant; and this occupant is usually there for something pertaining to the liquor-traffic, directly or indirectly. Last Sunday a little girl in Sunday-school told me there was a man in jail. He looked like a hard-working farmer, just about the same age that I am. Why should he be in jail? I found he *was* a farmer, as I judged, and a hard-working man. He had, however, been induced to get liquors at wholesale—as he said, at first for medical purposes; then, under the influence of temptation, he let others have it, and finally the officers were on his track. He received notice that they were coming one day, when he was thrashing. He left his work, and sought refuge at the home of a relative in an adjoining county. His wife wrote him (under cover, of course) that he had better leave the State, as the prospect was that he would be fined two hundred or three hundred dollars, and may be a year or more in the workhouse. At the time of his flight he had in his pocket some money that did not belong to him. However, he reasoned that extreme cases justify extreme measures, and he decided to take his wife's advice and use this money to get beyond the reach of the law. He went to the railroad station and called for a ticket to his place of destination, and found he had just money enough to get him through. Just at this time, however, he began to hesitate. Although he had been a liquor-dealer, as I have told you, in one sense of the word, he had never before committed a deliberate crime like the one he now contemplated. Years before, he had been a professor of religion and a member of the church. The church dwindled down, and what were left got into a quarrel; and in that quarrel he became involved, and they said some unkind things of him, misrepresenting his motives, and he got soured. He concluded he would read his Bible at home, and be a Christian all by himself—or he and his wife would lead Christian lives together without any help from the church. It is not at all strange that his Bible soon became neglected, that his religion became a thing of the past, and that he resolved to adopt desperate measures in order to help him out of his straitened circumstances. By the way, friends, do you know how often circumstances *do* become straitened when one loses his religion or lets it go? Yes, though he may work hard, and strain every nerve, misfortunes and trouble come upon him. Instead of, as we have it in the first Psalm, "Whatsover he doeth shall prosper," it seems just the other way—whatsoever he doeth shall *not* prosper. But, to go back: In order to help him out of his straitened circumstances he went to selling liquor, at good profits, no doubt. But no prosperity came of it; and when he was about to be arrested for violating the law he decided to use money he had no right to, and was even counseled by his wife to do this in order to evade the law. Perhaps I said his religion was forgotten. May the Lord be praised, it was not quite forgotten. When he stood before the ticket-office with the money in his hand, an old text flashed through his mind that he had heard years before. The text startled him. He told the ticket agent that, on further consideration, he would not take the ticket. He put the money into his pocket, and, as soon as he could, he restored it to those to whom it rightfully belonged. Of course, he was arrested. He told me he gave himself up to the officers of the law. If it was not that way exactly it was pretty near it, for my good friend the sheriff said the prisoner made no attempt to escape; and here I found him with the sentence of four months in the workhouse and a fine of a hundred dollars. He had already directed that his horse be sold to pay the hundred dollars, although the horse was pretty nearly all the available property he had in the world, and he was going on the morrow to the workhouse to commence his servitude of one hundred and twenty days. He felt pretty sad over the whole matter; and although he had decided to abandon his evil ways and do right as far as he knew how, it did not seem to have brought him very much comfort.

Do you want to know about that text? Well, it is the one at the head of this talk to-day. An eccentric individual who preached occasionally, delivered the sermon. People were a little surprised at the strangeness of his text, and this friend remembered it on that account. After a little questioning I found I knew the preacher well—in fact, he was a near relative, having married my own mother's sister. Both are dead and gone; but his eccentric sermon and strange text are still here continuing their work nevertheless. Ah, friends, this is only one of the wonderful things about the Bible and those Bible texts. Cast thy bread upon the waters, and thou shalt find it after many days. Yes, even *after* you have passed away, the words you have uttered may sound down through the ages. The connection, perhaps, is not very clear without a little explanation. This person had been a praying man in years gone by. Very likely he expected to go back to his religion by and by, just as *you* and *I* have thought we should do in times past. When, however, he stood face to face with the crime he had contemplated, conscience told him if he went on, God would not hear him. You remember the text, "If I regard iniquity in my heart, the Lord will not hear me;" and this text before us not only contains this, but adds, "And when ye spread forth your hands I will hide mine eyes from you; yea, when ye make many prayers I will not hear: your hands are full of blood." Of course, he did not propose to dip his hands in blood; but crime is sure to follow crime, and probably bloodshed would eventually be the outcome. As I sat by his side in the jail I continued to read. The next verse runs, "Wash ye, make you clean; put away the evil of your doings from before mine eyes.

Cease to do evil." Why, was it not wonderful? But a minute before, I was meditating where I should find something in the Bible applicable to his case and to his state of mind. While I was turning the leaves absently *he* directed me. I do not know that I ever noticed before these wonderful words in the first chapter of Isaiah. Now just look at the words of the next verse. After I read "Cease to do evil." I followed on—"Learn to do well." What plain, simple terms the prophet uses! And a little further on we read, "Come now and let us reason together, saith the Lord. Though your sins be as scarlet, they shall be as white as snow; though they be red like crimson, they shall be as white as wool." It seemed then just as if the words of the *Master* shone through those Bible texts. In fact, I had a sort of feeling that some third party was there with us, pointing out to me what to read, and telling me what to say. I cheered and comforted my poor friend. I told him that he had obeyed the scripture command so far. He had ceased to do evil as well as he could, and was trying to do well. As I shook hands with him, perhaps never to meet him again, there were tears in his eyes; but, dear friends, they were not altogether tears of sorrow at the hard path that lay before him. A new hope had come into his soul there in that jail; and I fully believed he was honest and sincere in his determination to take up again his forgotten and neglected Bible, and to leave all and follow Christ Jesus. He said there was no church of the denomination he belonged to, now in his neighborhood. Said I, "But, dear brother, never mind if there is not exactly that one church you like and prefer. There is certainly *some* church or some gathering of Christian people. Unite with them, and *help* them in their endeavors to lead Christian lives. Never again make the mistake of trying to follow Jesus all alone by yourself. It never works." "He that loveth not his brother whom he hath seen, how shall he love God whom he hath not seen?"

And now, dear brother or sister, if this little lesson strikes any one of you—if any who look on these pages have strayed away from the fold because the church has dwindled down, or there has been quarreling, take warning, I beseech you, and do not wait until the *prison*-doors come, but go now like the prodigal son, and take up your cross, and live and die a live, earnest Christian.

A hard thing for humanity to learn is that there is no satisfaction nor profit in sin. "The wages of sin is death;" and yet, after repeated experiences showing the truth of this, we can not believe it. Satan persuades us that we can be happy with ill-gotten gains; and yet we have illustrations continually, showing us that this is not true. The man who runs away with money belonging to somebody else, or with money intrusted to his care, never finds happiness nor enjoyment of any kind. A case illustrating this is just before me. One of our bee-keeping friends, Mr. C. G. Ferris, of Miller's Mills, N. Y., was induced to send ten kegs of honey to an institution styling itself the Champion City Produce Co., Springfield, O. They had quite a taking name, and he thought that they were all right. After a while he inquired about his honey, and they told him that one of the kegs was smashed, and the contents lost, and they were waiting to get the railroad company to settle up in regard to it. Although the price agreed upon was F. O. B. at friend Ferris' railroad station, he finally, to get the matter settled, told them to deduct the price of one keg and send the rest of the money. Then they did not answer at all. The matter was submitted to us, and what do you think investigation showed? First, that the Champion City Produce Co. belonged to a young man by the name of Ed. L. Bowlus; that he was continually making purchases of every thing he could get hold of, without any intention of paying a cent for any thing; and he even succeeded in getting a large amount of stuff. It is strange that bee-keepers or anybody else should persist in sending honey or other produce to any person or institution without first making inquiry at the bank, or inquiring of us whether such persons are reliable. As this young man Bowlus never paid for any thing, one might suppose he would get lots of money, and have a good time so long as he could escape the law. Did he? Not at all. After continuing in this way, and getting all the enjoyment that property with a guilty conscience could give him, he—*committed suicide!* When a man has deliberately decided on such a course of fraud and cheat, he has, of course, turned his back on God. He has abandoned all thoughts of right, justice, and religion. He is in opposition to the great God above. In the language of our text, he knows that God can not hear him. Right along in the same line he defies public sentiment, and the good opinion of his fellow-men; he forfeits all claim to sympathy from his fellow-men, and finally ends in suicide. Oh! shall we not be warned while yet it is time? shall we not, in the words of Holy Writ, "cease to do evil and learn to do well"?

There seems to be something really strange about the way a man loses the respect of his fellow-men when he loses his respect for God. When a man says in his heart, "I am going to look out for No. 1, and have a good time without any regard to conscience or any thing else," he commences almost at once to ignore the claims of humanity upon him. Just a few days ago an incident came to my notice as follows:

A man of considerable property rented a little place to a German family. This family had borrowed some money of a miller near by. By hard work and careful saving they had scraped together the amount necessary to take up the note; and as this man of wealth was going to pass the mill, they sent word by him that, if the miller would send the note by the bearer of the message, they would take it up. This wealthy man, however, saw a chance for speculation. The note was for $75.00. Instead of delivering the message as given him, he told the miller the German family were not doing very well, and that there was but little prospect that they would ever be able to take up the note at all. He remarked that *he*, however, might get at least a part of it by letting them *work it out* on his own premises. The miller, not suspecting any trap or swindle, finally sold the note of $75.00 for $40.00—a little more than half price. The rich man carried the note back, presented it, and got his $75.00. The German family supposed, of course, that he had simply brought the note for them to take up. So he put $35.00 into his own pocket as the result of his own shrewdness. Of course, the matter got out; but as he was used to such sharp practices, he seemed to care but little or nothing about it. He offered the miller $40.00 for it, and he took him up; so in one sense he made what might be considered a fair and square bargain. Very likely he could have been arrested for obtaining the note under false pretenses or false-representation; but as the parties were poor and he was rich, it was allowed to pass. I need not tell you that such a man never thinks of prayer. Well might the prophet say to all such as he, "When ye make many prayers I will not hear." At another time this same man of wealth and means purchased a farm. I have seen the farm, and am personally acquainted with all the parties. The owner of the farm was well along in years, and there had been indications that his mind was failing. Notwithstanding, he sold the place in spite of all his children could do to persuade him not to let it go. Almost immediately after the sale, however, he became very sorry for his rash act; and, in fact, as he looked over the home where he had been so many years, and where all his children had been born and brought up, he became terribly homesick, or, as the boys sometimes say, "sick of his bargain," and finally made overtures to this man of wealth to trade back. It was the same man, mind you, who bought the note by false statement, and he held off and refused to let the old gentleman have his farm back until he actually offered and *paid* him *fifteen hundred dollars!* The whole transaction occurred within a short time. Now, a good many of you may say that this was perfectly fair and all right. Very likely there was nothing *illegal* about it. But, can a man have a good conscience before God and his fellow-men who thus takes from the pocket of a neighbor the sum of $1500 for trading back? Trades or purchases are usually made with the understanding that the exchange is a *fair* one on both sides; therefore if one of the parties should change his mind, or repent of his bargain, under ordinary circumstances fairness and justice would indicate that the purchaser should receive enough to pay him for his time and trouble, but no more. What do you suppose became of the rich man? If he continued to meet with such chances as I have named, to "speculate" every day, he would soon become a "millionaire." Do you think so? God forbid. I do not know how millionaires usually get their money; but this man, a little later, was involved in a scene of crime and murder. He lost his property, lost his good name (if, indeed, there was any good name to lose), and fled the country. When he started out in his evil ways, as I have said before, he defied God and justice. In the language of our text, the Father above had hidden his eyes from him. He did not dare to even *look* toward a just God; and finally he did not dare to look into the face of *any one* in the community who knew him. He commenced by robbing his neighbors until no one had enough confidence in him to permit him to rob them any more. His final act was one involving the ruin of a child, the daughter of a near neighbor where I used to live; and murder was the final end.

While speaking of this matter of trading back, I want to mention an incident of my early life in business—an incident that taught me a lesson. It may sound somewhat like boasting; but at the time I did it I had no thought that I was doing any more than any one ought to do. An elderly gentleman came into the store to buy a watch. He had never carried a watch, and was therefore entirely inexperienced in such matters. After spending an hour or more I rigged him out with one that seemed to suit him. He paid the price asked, and went home apparently well pleased. Now, it seems that he had decided on the purchase of a watch without saying a word about it to his grown-up children; and when he exhibited it to them and told them he had patronized a town jeweler without having some one experienced in watches go along with him, they laughingly declared that he had been swindled outright—that the watch was not worth half what he paid for it, etc. However, he insisted that the man he traded with *looked* honest, and he believed he *was* honest. One of the sons said, banteringly:

"Now look here, father. You go right back to the jeweler to-morrow and ask him how much money you will have to pay him to trade back. If he does not admit by his reply that he swindled you to the extent of five or ten dollars, we will, with you, conclude he is an honest man."

They worried the old gentleman so much that he concluded to test his new friend the jeweler. As he came into the store the conversation was something as follows:

"Mr. Root, suppose I decide that I do not wish to keep the watch just now, after all; how much money must I pay you to trade back?"

"Why, the watch runs well, does it not?"

"Oh, yes! at least, I suppose it does. Yes, it is just with your clock to the minute. There is no trouble with it, so far as I know; but I should like to know just how much money I must pay you to take it off my hands."

It was something of a struggle, I confess. I had worked hard for perhaps two hours to make the sale, and I did not at all relish taking the watch back and giving him his money. However, as I had sold the watch at a small profit I concluded that the most gentlemanly way would be not to make any charge, as it was returned in perfect order; therefore I told him that he could have his money back without any charge for my time, if he decided he did not really want the watch. So I counted out the exact sum, and laid it before him on the counter. Then you should have seen his face as he burst into a laugh, and put the watch back into his pocket. Of course, he explained to me the whole circumstance. But, didn't he crow over the children when he got home! They, of course, had to own up beat; but they declared that it was a most remarkable thing to find a jeweler, or, in fact, a man in any other similar line of business, who would "swap back" without a "bonus." Well, he exhibited that watch with great pride to all his friends and acquaintances, and told the story, and brought other men to my store to buy watches. Why, dear friends, it was a better advertisement for me than any notice I ever put in the papers, and yet I did not know it. "O ye of little faith! wherefore do ye doubt?" A man who is honest and fair, and upright and true, not only has the love of God in his heart to cheer him on his pathway through life; he not only has the confidence and esteem of his fellow-men, but he actually *makes more money*. And finally, when trouble comes—yes, when sickness and death are near, and he feels constrained to throw himself on the mercy of the great God above, he need not fear the concluding words of our text, "I will not hear: your hands are full of blood."

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

Sin, when it is finished, bringeth forth death.—JAMES 1: 15.

Is your apiary all fed up and in winter quarters? Ours is.

SECRETARIES of bee-conventions will oblige us by sending us prompt notices of their local and State conventions.

THE Michigan State Bee-keepers' Association will meet at Grand Rapids, Mich., Dec. 31 and Jan. 1, next. Reduced rates have been secured at the Eagle Hotel; and as this will be during the holidays there will be generally reduced railroad rates. This is another of the good conventions, and its reputation is high. It is right in the midst of some of the best and brightest bee-keepers in the country, and we urge all those to attend who can.

We have all our hives now elevated on Heddon hive-stands—the same stand that he used under his original eight-frame hive; and we believe he also uses them now under his new divisible-brood-chamber hive. We like them the best of any thing we have seen or tried for the purpose. But, more anon in regard to them and their use.

In another column will be found a notice of the Northwestern Bee-keepers' Association, to be held in Chicago, Thursday and Friday, Nov. 19 and 20. A. I. Root will take in the convention on his way to meet Prof. Cook at Denver, Dec. 1. Of course, Dr. Miller will attend. This association has the reputation of having some of the best conventions, and some think them equal to those of the North American. We trust that every one who can be present will make a special effort to go.

Dr. Miller, in his Straws, asks us if there is any more weight on two horizontal wires in his way of wiring than if he had two horizontal without any perpendicular wires. As you suggest, doctor, your wires would be drawn tighter; and the more a wire is pulled taut, the less strength it has. In horizontal wiring we recommend for the L. frame three wires; and, in addition, the top edge of the foundation should be fastened to the comb-guide above. This really makes four supports instead of two, as you had them, doctor.

It is now approaching the time to start another crop of bee-journals. Perhaps a suggestion to prospective editors may not be out of place. If you think there is a mint of money in bee-journalism, you may be disappointed; and if you think it will advertise your supply business, and lead you on the highway to success, you may be disappointed again. At any rate, do not put out the first edition poorly printed with poor ink on poor paper. If you do, its doom is sealed at once. Bee-keepers as a class have come to be quite fastidious.

We are now putting our outside winter cases on the Dovetailed hives of the Shane yard. We painted all of these cases Venetian red. As they are to be on only during the early spring, late fall, and during the winter, the red color, instead of being a detriment will be an advantage. Of course, it would not do to paint single-walled hives, or hives that are to be in use during the summer, red. Venetian red, as a paint, is a great deal more permanent than white, and therefore there are two reasons why it should be used on winter cases; viz., economy, and the additional warmth from the sun's rays.

We were just glancing over a bundle of letters when our eye took in the last number of the *Bee-Keepers' Review* which the clerk had just laid on our desk. The letters were immediately put down and the *Review* taken up. After we had glanced through it pretty thoroughly the question came to us, "What makes the *Review* so crisp? and why is it we take it up so quick when it comes? Is it because the editor quotes very largely from Gleanings in his 'Extracted' department?" No, not exactly, although that is a delicate compliment to this journal; it is because the editor throws his whole being into his paper. He loves it and his readers.

Our apiarist is very much pleased with the new one-story Dovetailed chaff hive. It is but little heavier than the one-story single-walled hive, and yet has the same chaff-packing space that our old-style one-story chaff has had, that has given us splendid results for the past four or five years in wintering. We expect to use these new hives next summer in an out-apiary, and leave them permanently, or until such time as the necessities of the location may demand their removal. Although double-walled, they are so small that 30 of them may be loaded on to a wagon very easily, and they take no more space than 40 of the single-walled hives would. The projecting water-table makes them easy to handle.

We have just been looking at our Punics again. They are little black fellows, and they do not seem to show that nervousness that a lot of young black bees do among Italians. It is said that Punics will not sting, and we believe that some go so far as to state that they can not be made to sting. The bees in our yard are from select tested Punic queens, and our apiarist says they *will* sting. He picked up one by the wing and held it against his hand, and it actually did sting him. He picked up several others, and they did not. Then he tried Italians in a similar way, with similar results. The fact is, almost any bees will stick out their stings when you pick them up by the wings; but unless you squeeze them they rarely sting you even when you place the sting against your flesh.

It has sometimes been doubted whether it is necessary to go to the expense of importing queens, the argument being that we can breed at home a great deal better stock. This may be true; but the average home-bred queens, in our experience, are not quite as good for real business. Here is a letter that speaks for itself, and which came unsolicited:

> ***Mr. Root:*** The best imported queen arrived in good shape the day after being mailed at Medina. I introduced her successfully, and her progeny have now hatched in large numbers, notwithstanding her being introduced so late in the season. They are also far better workers than my five-banded stock, especially on cool days.
>
> Hinchman, Mich., Oct. 26. E. A. Boal.

As we have reiterated before, stock that is bred for color is pretty apt not to be equal to that which is bred for business, and where color is made entirely secondary.

We are not really satisfied with white lead for a body paint to hives. It flakes off too easily. Common yellow ocher, were it not for the color, would be vastly ahead. Well, the permanence of white lead for a priming coat can be very greatly increased by the addition of about 50 per cent of yellow ocher. The second coat can then have one-third of ocher and two-thirds of lead. The resultant color will be a light cream so near white, we think, as not to make any practical difference as to the absorption of the sun's rays; and if all hives are shaded as they should be, either with shade-boards or shrubbery, it can certainly make no difference. Well, then, we have a paint that will outlast pure white lead. Those of you who have any thing to do with painting know that ocher makes an enduring priming coat. Venetian red is just as good, only the color is against it for single-walled hives, as pointed out elsewhere.

COUNTING THE COST.

If any one thinks there must be enormous profits in making bee-hives, he probably does not stop to consider the wear and tear of machinery, and the renewal of said machinery when worn out. Just recently one of our boilers—the oldest one—gave out, and we had to stop and reflue it; and now—it leaks again! We shall have to remove the defective flues. and put others in their place. A few weeks ago our boiler feed-water heater gave out, and another had to be ordered to take its place. This is only a very few of the many losses every manufacturer has to encounter. All of these expenses, if not figured in the cost of production, have to come out of the profits. A certain supply-dealer started up a few years ago to put in a manufacturing plant of his own. Before that, he had been buying all of his hives and fixtures, and selling on commission, and was doing a fairly good business. But now he bitterly repents the project of going into manufacturing. Instead of increasing his profits as he thought, he made his goods at a loss, and so has many another one who thought he could make his material cheaper than to buy it. The trouble is, with many who go into the business, they figure only two things—cost of labor and cost of material. They forget to add in quite a large item of wear and tear of machinery, cost of renewal, breakdowns, an occasional fire, cost of insurance, interest on the money, mistakes, lack of experience, storage, maintenance of buildings, and a thousand and one other things that eat into the profits. We do not say that there are not some few small supply-dealers who make money at it; but we wish the prospective ones to count the cost and to count it right before they curse the day they went into the business. The fact should not be lost sight of, that a large plant can manufacture goods for less money, and that the incidental expenses are also less in proportion.

A BAD RULING IN REGARD TO SHIPMENTS OF COMB HONEY.

THE following illustrates just what we expected would take place, as we explained on page 701 of current volume. We felt very sure that the ruling that requires that all comb honey shall have the glass fronts covered with crating would work mischief, and so it is. The following is a letter from a prominent honey dealer:

> *Mr. A. I. Root:*—We are receiving quite a few shipments of honey where the bee men are compelled to board the glass fronts, and honey has reached here in very poor shape, as freight-handlers are not aware of contents, and handle roughly. We are very heavy receivers of produce on this market, and have considerable influence with the railroad companies, and feel confident that we can secure the removal of the law compelling agents to "refuse honey in crates unless glass is protected;" but before attempting to take a voice in the above, we prefer corresponding with you. We are at all times ready to champion any cause to further the interests of the bee-men; so, command us when we can be of service. We have one complaint to make; and that is, that bee-men are trying to impose upon us by sending honey-dew, which we do not want to sell to the trade. S. T. FISH & Co.
>
> Chicago, Oct. 24, 1891.

We wish that all interested bee-keepers and all commission merchants would send their protest to J. T. Ripley, Rookery, Room 733, Chicago. Mr. Ripley, as the pages of our journal have shown, has shown a disposition to grant concessions to bee-keepers when the rulings are manifestly wrong, and for this he has our hearty thanks. But with regard to crating packages of glassed comb honey, he does not see fit to modify the ruling. We feel sure, from what we know of him, that, when the facts are properly brought before him, and enough bee-keepers render their protest, he will grant us what we ask. We will send a marked copy of this to Mr. Ripley, and request bee-keepers, and all others who have suffered in consequence of the ruling as it now stands, to send him a gentlemanly and courteous request that he let comb honey in glass-front shipping-cases go uncrated. The very *purpose* of the glass fronts is to show that the package is of a fragile character.

CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will meet in Grand Rapids, Mich., on Thursday, Dec. 31st, 1891, and Friday, Jan. 1st, 1892. G. E. HILTON, Sec., Fremont, Mich.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Thursday and Friday, Nov. 19 and 20, at 9 A.M. Arrangements have been made with the hotel for back room, one bed, two persons, $1.75 per day each; front room, $2.00 per day for each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip. W. Z. HUTCHINSON, Sec., Flint, Mich.

The first regular meeting of the Connecticut Bee-keepers' Association will be held at the Capitol, Hartford, Nov. 11th, commencing at 10:30 A.M.; afternoon session at 2:30. Papers will be read, followed by discussions, and it is hoped that all interested in bee culture will make an effort to be present. The Connecticut association is the ninth to affiliate with the North American Bee-keepers' Association.

MRS. W. E RILEY, Sec., Waterbury, Ct.

As previously stated, the meeting of the North American Bee-keepers' Association will take place at Albany, N. Y., Dec. 8 to 11. Our president has been working hard, and has secured reduced railroad rates from Chicago and the Mississippi River, and from the South. The meeting promises to be the best in the history of the association, and we hope the West will send a good delegation. Besides personal members' attendance, we expect every local and State association to send one or more delegates. This will be a good occasion for Western bee-men to become acquainted with the noted bee-keepers of the East, nearly all of whom will attend this meeting. Bee-keepers desiring to attend will please send their names either to the president, Mr. P. H. Elwood, Starkville, N. Y., or to the undersigned, as we intend to publish a full list of those who are expected to be present. C. P. DADANT, Sec., Hamilton, Ill.

SPECIAL NOTICES.

FIGWORT, OR SIMPSON HONEY-PLANT, SEED WANTED.

If any of our readers have any of the above to sell, please write, sending small sample. State how much you have, and what you want for it.

EARLY-ORDER DISCOUNT.

We desire to remind all you forehanded people who take advantage of early-order discounts, that the time is rapidly growing shorter when we allow the largest discount. Only a little over a month remains in which to secure the 5 per cent we allow on orders sent for goods for next season's use. On Dec. 1st the discount drops to 4 per cent, as you will see by referring to page 4 of our price list, where you will also find the limit of the goods to which the discount applies. I believe the number is increasing each year, of those who take advantage of this discount; and those who try the plan once, usually continue to do so, for they learn the great advantage of having their goods on hand to make up during the winter months, when time is plentiful; and when busy spring returns, and the bees begin to require "fixin's," they are at hand for immediate use, ready to secure the best possible results from the bees. The forehanded bee-keepers pursue this policy; but the slipshod ones wait till the last minute, when they haven't time to send for the best-made goods without incurring a loss in honey or swarms, and very often have to put up with a makeshift in the way of hives and fixtures. We have heard of cases of this kind so often that we offer the advice for your good, as well as to secure a larger proportion of orders during the dull season, when we have time to give them most careful attention. Many things point to a good season next year. Anticipate your needs, and order early.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

MOORE'S STRAIN OF ITALIANS.

HOW THEY "ROLL" IN THE HONEY.

T. J. Moffit, Kemp's Mills, N. C., says: "They beat any thing I ever saw in the bee line. They are certainly 'rolling' in the honey now. One of them beats three of my others at work, and they seem very gentle. I would not take $5.00 apiece for them." The above is in reference to 3 warranted queens sold to friend M., June 22, 1891. They were bred from my famous red-clover queen, whose daughters I am now selling at 80 cts. each, or 3 for $2.00, by return mail. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE.—One-horse-power Shipman Engine and Boiler, in good order; never used but a little. Cost $125.00. Sell for $60.00. With Barnes Circular and Scroll Saws, $85.00. D. S. BASSETT,
Farnumsville, Worcester Co., Mass.

FOR SALE--5 TONS HUBBARD SQUASH.

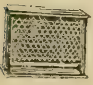
Ripe and nice. Who wants them?
M. ISBELL, Norwich, Chenango Co., N. Y.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.



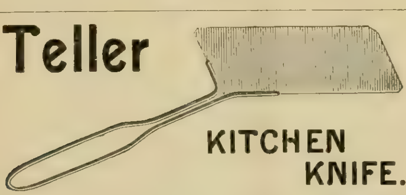
Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

Apiary and Storeroom for Sale.

In Central Iowa, 80 colonies Italian bees in modified 10-frame L. hives, and all necessary modern implements. A good supply of white clover, basswood, and a great variety of other bee-pasturage. No large apiary within ten miles; plenty of room for out-apiaries. Also a good location for a store or creamery. A good house with 12 rooms, new barn, 36x42 feet; good well and cistern; 20 acres of land, 3 acres used for raising truck, the rest for pasturage; all fenced with hog-tight fence. A fine lot of young basswood and other kinds of timber growing; ¼ mile from school and Sunday-school. Reason for selling, old age and poor health. For further particulars, address W. R. H., 17-19 21d
St. Anthony, Marshall Co., Ia.

Teller



KITCHEN KNIFE.

This is the knife we have sold for years as our 10-cent honey-knife. It has lately been improved by putting on a wire handle instead of the old one of cast iron. It is the invention of a woman, for work in the kitchen, such as chopping potatoes, turning pancakes, scraping kettles, etc. Many thousands have been sold for use in the kitchen, and they prove so satisfactory that the manufacturer makes the following guarantee:

Any purchaser who, after using the knife one month, may decide that she does not want it, may write me to that effect, stating the amount paid, whereupon I will return to her the said amount by mail. R. K. TELLER.

They are excellent for scraping bits of comb and propolis from frames and hives, and can be used for uncapping. We have just bought our third lot of about a thousand, and offer them as follows:

Ten cents each. By mail, 15 cts., or 2 for 25 cts; 85 cts per doz.; or by mail, $1.20; $9.00 per gross, by frieght or express.

A. I. Root, Medina, Ohio.

I MAKE THE

Benton Shipping and Introducing Cage

in two styles, at $10.00 and $20.00 per 100. I am sending them all over the country. The largest queen-breeders are using them, and are enthusiastic in their praise. Send your order now, and get 5 per cent discount from above prices. A full line of

BEE-KEEPERS' SUPPLIES

always in stock. Catalogues free. 17-21d

C. W. COSTELLOW, WATERBORO, YORK CO., ME.

☞ In responding to this advertisement mention GLEANINGS.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
2	2	20	⅝	27.
72	2	19	¾	103, 100.
72	2	18	1	61, 53, 48, 35, 22, 22.
36	2	17	1¼	23. 15.
36	2	16	1½	23; 18 in. wide, 40; 24 in. wide, 94, 88
72	2	16	1½	60. 58, 56; 30 in. wide, 46, 24; 48 in. wide, 48.
18	2	15	2	87, 30; 12 in. wide, 100.
24	2	15	2	100, 90, 69 52, 33, 13, 12, 60 in. wide, 21, 20.
42	2	15	2	121, 23, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49. 48, 45, 38, 37, 30, 29, 26, 14.
30	1½	19	1	33, 36 in. wide, 47.
42	1½	19	1	85, 59; 60 in., 56; 72 in.
18	1½	18	1⅓	40, 14; 54 in., 12; 60 in , 34
30	1½	16	2½	79; 36 in., 14; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22
36	1¼	19	1⅔	48, 12, 24 in., 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 10; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40; 60 in., 26; 18 in., 50.
32	1	18	2½	85; 24 in., 23; 30 in., 69.
36	1	18	2½	48 in., 30; 60 in., 59.
9	¾	20	2¾	7; 36 in., 55
24	3	16	1	19; 36 in., 86; 42 in., 14.
36	3	15	1⅛	63; 48 in., 60.
48	3	14	1⅞	45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23.
22	4	14	4	107, 68, 35, 17, 15.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24 23, 18.
42	4	14	5	68, 62, 62, 23, 22, 22 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

ONE COLONY Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. W. Z. HUTCHINSON, Flint, Michigan.

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.

—Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES Many may confound the two, but they are ENTIRELY different **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS. 6-4d

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

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24	2	15	2	100, 90, 69, 52, 33, 13, 12, 60 in. wide, 21, 20.
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Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

SECTIONS.

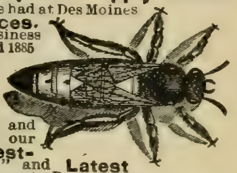
$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.

NOVELTY CO.,
Rock Falls, Illinois.

6tfdb

☞In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House



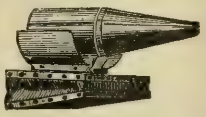
Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

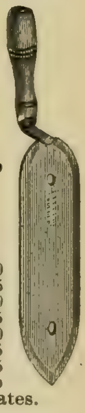
3tfdb

☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS
WITHOUT A
PARALLEL, AND
THE STAND
ARD IN EVERY
CIVILIZED
COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	$2.00
Conqueror "	3	"	"	1.75
Large "	2½	"	"	1.50
Extra (wide shield)	2	"	"	1.25
Plain (narrow ")	2	"	"	1 00
Little Wonder,	1¾	"	"	65
Uncapping Knife				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

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SPECIAL NOTICES.

MAPLE SUGAR STIRRED OFF DRY.

If any of the friends have, like myself, a sweet tooth for this kind of sugar, I wish to tell them that we have about 100 lbs. of extra nice. It was brought in by one of our Medina County farmers a few days ago. We can sell it to you for 8 cts. per lb. as long as it lasts. If you have never tasted maple sugar stirred off dry, there is a pleasant surprise in store for you; at least, that is what *I* think. It is especially nice on oatmeal, cornmeal mush, or any thing of that sort. Put on plenty of butter, then sift in the sugar, add a little cream, and—try it yourself.

PROF. W. I. CHAMBERLAIN'S NEW BOOK ON UNDERDRAINING.

This book is now in press, and 32 pages are already printed, and another 32 will be out very soon. The book is to be a companion to the industrial manuals which we have been publishing; viz., The A B C of Strawberry Culture; The A B C of Potato Culture; Prof. Cook's Book on the Sugar-bush; Winter Care of Horses and Cattle, etc. Perhaps no better thing can be said of the book than to copy an editorial from the *Rural New-Yorker* of Aug. 29. The *Rural* was permitted to use some of the cuts intended for the book, with an article written by friend Chamberlain. Here is what they say:

> It is now nearly forty years since W. I. Chamberlain laid his first underdrain. In that one, cobble stones were used for tile. He has now, as he tells us elsewhere, fifteen miles of tile on his farm. The article printed in this number gives the conclusions drawn from forty years of actual observation of the effects of tile drainage on a soil that is typical of thousands of acres in Ohio, and of millions of acres in this country. A dapper young minister once asked Dr. Lyman Beecher, after listening to one of his great sermons, "How long did it take you, Mr. Beecher, to write that sermon?" "Forty years!" was the instant and emphatic reply; and it was a fact, because the ideas advanced in the sermon were based upon the thought and observation of that length of time. In a like manner we may safely say that Mr. Chamberlain has been forty years in writing this article on drainage. As to our opinion of its value, we can only say that, if any better statement of the matter has ever been printed, we wish to know where it is that we may publish it in our journal. We like these forty-year articles so well that we have planned for a number of them during the coming year.

The price of the book will probably be 40 cents—certainly not less. If any of you are at work on underdraining, or want information right away, send us 40 cts. and you may have the advance sheets of the book as fast as it is printed, besides having a complete copy when done. Of course, A. I. Root will have something to say in the book, as he did when Terry wrote about strawberries.

KIND WORDS FROM OUR CUSTOMERS.

The Star butcher-saw plates from you fill the bill exactly to a dot. How nicely they cut, how easily they work in the orchard! Yes, and how cheap they are for the money! L. R. HILLMAN.

Canova, S. Dak., July 28.

A KIND WORD FOR TWO (?) GOOD PERIODICALS.

I can't resist subscribing for the *Rural New-Yorker* when I can get it for $1.25, even if money is short and cheap papers plentiful. The *Rural* is worth half a dozen of the cheap monthlies, and I will not get along without GLEANINGS as long as I can get the dollar. Give us more of the garden department, also fruit, especially small fruits.

Grand View, Tenn. A. F. AMES.

Friend Root:—If I was pleased with your select tested queen when she arrived, I am more than pleased now that her progeny has appeared. Her workers are very gentle and energetic, beautifully marked, and altogether handsome and pleasing to the eye. Her long confinement in the mail has evidently not been detrimental to her, as she is *very* prolific, and her strain is destined to predominate largely in my apiary. Since reading your strawberry book, I've got the strawberry fever right bad, and should like to know how I can obtain some of the varieties mentioned therein. Kindly let me know how it is possible to get them.

Goodna, Queensland, Aus., Oct. 2. H. L. JONES.

SOMETHING FURTHER IN REGARD TO THE INTERNAL WATER CURE.

Your little pamphlet on the internal use of hot water I happened to see. I have had occasion many times to use the remedy for constipation, and believe a more systematic use, as you recommend, would benefit me, and perhaps cure the internal piles I now have. I would respectfully suggest to you the importance of saying in the pamphlet that the injection should not be used within an hour or two after eating—at night on retiring or in the morning on rising; digestion is interfered with otherwise; also a little salt added to the water lessens the severity of the stinging. Snuff water up the nose clear, and see hows it hurts; add a little salt, and see how it softens and smooths it. The nozzle of the syringe should be greased—vaseline is good—before inserting it into the delicate member. With thanks for your humanitarian effort, I am—

Brooklyn, N. Y., Nov. 1. A. F. W. GRANT.

SOME KIND WORDS FROM A COLLEGE PROFESSOR.

Mr. Root:—I have this minute finished reading your little pamphlet on "A New Method of Treating Disease Without Medicine." I have long wanted just such a point in hygiene, not for my own use, but for my patients and those under my care. I admire your straightforward way of putting the truth. I do not doubt that you have already done much good by the distribution of this little tract. Here is another thing that will interest you. A pint of cold water taken into the stomach on rising, one hour before breakfast, washes out from the stomach all accumulated mucus and stimulates the stomach to secrete a profuse supply of gastric juice. The water and mucous from the stomach pass on down through the alimentary canal, softening and lubricating every thing therein, so that, within half an hour after breakfast, a free, easy passage of the bowels occurs. It seems to me that this remedy combined with yours ought to keep the system pretty well washed out. There is nothing deleterious in the drink of cold water we have before breakfast. Let me thank you again for your pamphlet. You very kindly offer to furnish the pamphlets to any one who can use them for the benefit of mankind. I have many student friends in the Northwestern University who are being urged to pay $4.00 for A. Wilford Hall's "Secret." I should like to send them a few copies, and should also like to have a few copies to use among our own students. WINFIELD S. HALL, M. D.,

Prof. of Biology, and College Physician.

Haverford College, Pa., Nov. 6.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Honey market quiet. We have disposed of nearly all of our comb honey, but had to reduce prices somewhat in order to meet competition. Extracted unchanged. Supplies running down, and we are in the market for low dark grades. *Beeswax*, 26@28c. Demand moderate. New supplies will come in from the West Indies in about a month.

F. G. STROHMEYER,
Nov. 9. New York.

CHICAGO.—*Honey.*—Comb honey is selling well at 15@16c for the best grades. Nearly all late arrivals have come in good order. Dark is slow of sale, with exception of dark extracted, which sells at 6@6½c, and white at 7@8c, according to quality and style of package. *Beeswax*, 27@28c.

R. A. BURNETT,
Nov. 7. 161 S. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—Demand for honey is very slow for this time of the year, from manufacturers and consumers. Supply is good of all kinds except, perhaps, strictly choice comb honey. Extracted honey brings 6@8c on arrival. Choice comb honey, 12@16c in a jobbing way. There is a fair demand for beeswax, with a good supply. It brings 23@25c on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Nov. 7. Cincinnati, O.

KANSAS CITY.—*Honey.*—Demand for comb good, supply large. We quote 1-lb. sections, white, 15@16; 1-lb. dark, 12c; extracted, white, 7@7½; dark, 5@6½. *Beeswax*, none on the market.

HAMBLIN & BEARSS,
Nov. 11. 514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—Our market is quiet. We quote: Fancy white, 1 lb., 14@15c; 2 lbs., 12; off grades, 1 lb., 12@13; 2 lbs., 10@11; buckwheat, 1-lb., 10@11; 2 lbs., 9c; extracted, white clover, basswood, California, 6¾@7c; orange bloom, 7@7½; Southern, 65@70c per gal. *Beeswax*, 26@27.

HILDRETH BROS. & SEGELKEN,
Nov. 11. New York.

CHICAGO.—*Honey.*—Good demand for fancy white honey in 1-lb. sections at 16c. Other grades white, 14@15. Extracted honey selling slow, owing to warm weather. Quote selling 6½@7½. *Beeswax*, light supply, good demand at 26@27.

S. T. FISH & CO.,
Nov. 5. 189 So. Water St., Chicago, Ill.

DETROIT.—*Honey*—Comb honey in fair demand at 12@13c; supply light. Extracted, 7@8c. *Beeswax* in good supply at 25@26c.

M. H. HUNT,
Nov. 9. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—There is little of an encouraging nature to report in regard to the honey market. The trade is very quiet, and prices unchanged.

D. G. TUTT GRO. CO.,
Nov. 9. St. Louis, Mo.

FOR SALE.—Extracted honey, basswood, clover, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us. 22-2db
S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address
11tfdb E. LOVETT, San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

WANTED.—10,000 lbs. bright white comb honey.
B. WALKER, Capac, Mich., or Glen Haven, Wis.

FOR SALE.—1000 lbs. of buckwheat comb honey.
20d D. F. LASHIER, Hooper, Broome Co., N. Y.

FOR SALE.—Four bbls. of basswood and 2 of alsike honey. It is in full 32-gallon barrels. I will send sample, and take $30 per barrel on track, or $32 delivered, or 8c per lb. H. H. OVERMYER, Lindsey, O.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

ADVERTISING MATTER judiciously distributed where it will do the most good among bee-keepers, farmers, dealers, etc., cheaper than you can mail it. Address LEE SHORTT,
Local advertising agent, Lower Cabot, Vt.

SAY, YOU BEE-KEEPER, with nothing to do all winter, have you seen my ad. of "Our Domestic" clothes-dryer, on page 800, Oct. 15? Remember I pay the freight.
D. S. HALL, Lower Cabot, Vt.

Hatch Chickens by Steam.
IMPROVED EXCELSIOR INCUBATOR
Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Circulars free.
Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.
☞ In responding to this advertisement mention GLEANINGS.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

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WANTED.—To exchange 10-inch Root fdn. mill, new queen-cages, drone-traps, etc., for display and job type. HOME, St. Petersburg, Fla.

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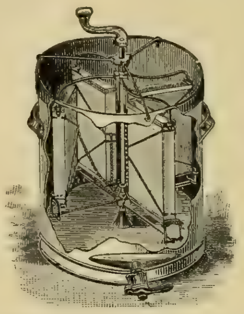

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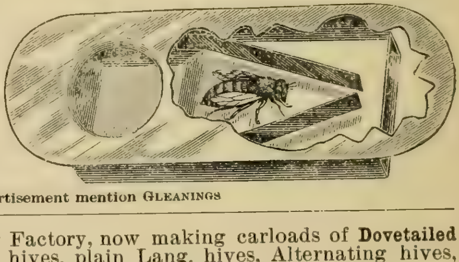

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A Journal devoted to Bees and Honey and Home Interests.
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$1.00 per Year. Medina Ohio

Vol. XIX. NOVEMBER 15, 1891. No. 22.

STRAY STRAWS

FROM DR. C. C. MILLER.

CHICAGO CONVENTION Nov. 19, 20.

A TWIN DOVETAILED HIVE is mentioned in *B. B. J.*

IF YOU WINTER in the cellar, try to get your bees in dry, and before they are frozen.

THE WAX-EXTRACTOR that S. F. Trego (*A. B. J.*) uses to melt old combs is simply an ordinary queen-nursery 18x18x10 inside.

SEVERAL QUEENS might be kept in one hive, Henry Alley thinks, if the points of their stings were clipped. Mightn't some of the workers need clipping?

HONEY-WATER, from which to make good strong vinegar, should be strong enough so that an egg floating in it will just show itself at the top.—*Dadant* in *Review*.

"WHEN THE BEES commence to drive the drones out of the hive at the close of the early honey-harvest, then cut out all the drone comb, and the bees will replace it with worker comb." —*H. Alley.*

A LAWSUIT occurred lately in England, in which a bee-keeper sued another man on whose premises a swarm alighted, and were burned by the owner of the premises. The bee-keeper beat.

A REPORT says that the D. A. Jones Co. has gone into liquidation. Sorry, but it may be a blessing in disguise. The *C. B. J.* hasn't failed, anyhow. The last number is an improvement —more Jones in it.

BEAUTIFUL FALL weather, and it seems as if bees might enjoy staying outdoors; but they don't fly any, and the thermometer goes down below 30° at night, so I suspect if they are to be taken into the cellar, the sooner the better.

MRS. HARRISON, in *Prairie Farmer*, says that the honey-bee is the only agent in securing perfect fertilization of apple-blossoms. That's an important item, if true; and it doesn't come from a person given to wild statements. I dare you to give us the proof, Lucinda.

THE *Review* is raising the question whether each number shall continue to discuss a special topic, said topics having been pretty well thrashed over. The *Review* has been so successful in this line that it's a pity to have any change made.

EDITOR HUTCHINSON objects to a record-book because it gets soiled, and because a pencil dangles from it with a string. Now look here, W. Z. Don't you get to being a dude that can't stand a little propolis. Of course, my book is all daubed with glue from one end to the other, and so are my hands; but I shan't give up using either on that account.

FRIEND ROOT, you say, page 836, "If you do not know how to put a pair of shears in nice cutting order, you ought to be ashamed of yourself." Well, I don't know, and of course I'm ashamed, but you ought to be ashamed that you didn't tell how, when you were talking about it. It's not too late now.

THE *C. B. J.* very properly disapproves the suggestion of the *B. B. J.*, that honey from foul-broody hives may be used for household purposes. "Supposing it is used on the table, and the water that the dishes were washed in thrown out in the yard, the bees might get it, and carry it back to the hives."

DADANT & SON say in *Review*, that, to get all the wax out of our old brood-combs, they should be mashed up fine when cold and brittle, and thoroughly soaked in water before melting. The breaking prevents the wax from lodging in the cells, and soaking full of water prevents the melted wax from soaking into the debris. That's bright. I move a vote of thanks to the Frenchmen.

"FRUIT is not injured by bees, because a bee has no biter, but only a slender proboscis with which she sucks her food." That's an argument I've seen used several times, but I don't believe it's wise to use such an argument, for the simple reason that it's not true. Bees have a "biter," as every bee-keeper knows who has seen them gnawing quilts, and even pine wood when the hive entrance is too small.

HERE'S PROOF that bees injure fruit. G. W. Camp says in Hanford *Sentinel*: "Mr. Oliver Smith informed me that the bees carried off a tray of raisins per day from his vineyard." He did not say whether they brought back the trays or not; but two of his neighbors told me that they saw the road near his place covered with bees carrying off his raisins. The bees were walking on their hind legs, and each one had a raisin between its fore claws.

SYRUP of granulated sugar shows more determination to granulate with me this fall than ever before, and others make the same complaint. Heddon says, in *Review*, "I find the granulated sugar much different from what it used to be *once.* Then the regulation amount of acid would hold it every time; *now* hardly any of the time." I wonder if we ought not to have a special brand of sugar for bee-keepers, something as the *B. B. J.* furnishes its patrons.

CUTTING TIN is one of the things that, as a bee-keeper, I often want to do, but sometimes have done it with a hammer because I couldn't wait to go to a tin-shop and didn't want to spoil my wife's shears. I thought I could hardly afford to pay a dollar or two for a pair of tinners' snips; but since friend Root offers them for a quarter I've ordered a pair, and will give up cutting tin with a hammer. I wonder if he couldn't sell $40 squaring shears for about a dollar!

A SWARM of bees is reported as settling on a man's chin; and the *C. B. J.*, commenting on it, says, "It is evident that the queen lighted on the man's chin, and the bees settled around her, same as they would on an ordinary limb." Hasn't brother Jones been caught napping for once? Do the bees follow the queen in settling, any more than they do in leaving the hive? Bees often settle on a limb when the clipped queen is not with them at all.

CYPRUS; BEES AND BEE-KEEPING.

CONTINUED FROM LAST ISSUE.

The way led us through badly paved and narrow streets until at length we arrived at the house, which was in a miserable condition. Through a low gateway he led us to his garden where a profusion of lemon-trees, orange-trees, pomegranates, and others were planted in a disorderly way. In the midst of the garden he had arranged his hives in a pyramidal shape above each other, with stone slabs closing up both ends of the two to three foot cylinders. A big entrance-hole (big enough to let the death-head moths and hornets fall upon unprotected hives) was in the lower part of the slab. The bees were working actively on cucumber, vegetable marrow, and other flowers of the *cucurbitacæ*, especially the "squirting cucumber" (*Echallium elaterium*), which yields bitter honey. This plant grows wild all over the East, but seems to prefer ruined places. Ashes and crumbled building material seem to be just the right thing to make them thrive. The plant very much resembles the cucumber at a distance, with its small yellow flowers; but coming nearer you find the leaves very prickly, much rougher than garden cucumbers, and the fruit a tiny cucumber growing at an angle of 45 degrees on an upright stalk. When we boys used to run about the ruins of Zion and Jerusalem we used to have great fun touching one of the ripe fruits, and off they go on the next person, sending out the juice and seeds right into the face or some part near the direction the fruit points. This is one of Nature's curious ways of propagating its kind by sending off the seed to a great distance. The cactus was also yielding some honey; but as too few hedges grow around Larnaca, and the cactus yields honey very sparingly, this source is equally a poor one. Thistles also, of the carduus tribe, grow round the town; and the best of all honey-plants for summer was just beginning to come into bloom—the thyme—of which we met four donkey-loads being brought to town from the mountains, for the oven. I felt very fidgety about it, although not living in the place; still, in Palestine they are doing the same thing, and robbing bees of their pasturage in the near future. Plenty of carob-trees grow all over Cyprus, and these carobs form an important article of export, while the flowers yield honey of a dark brown color. In places where cotton and hemp are cultivated, the bees also get a chance to gather some surplus; but cultivation or agriculture is carried on in the most primitive way. The island having been chosen as an abode for the gods by the ancients, Jupiter named the mountain Olympus, and

Sweet Venus, born of ocean's creamy foam,
Chooses the sea-kissed Paphos as her home.

In fact, a temple dedicated to Venus was dug up near Paphos, and is supposed by archæologists to be one of the oldest temples in the world—at least of the *Greek* world.

Old Neptune calls up from their ocean bed
His favorite Nereids to the mountain's head;
Shows them the sacred land, and bids each say
Where on the thirsty soil her streams shall play.

But the beauty and fruitfulness of this island have gone, partly by the carelessness of its inhabitants, by the past government, and the teeth of 250,000 goats roaming about the island. The British government has done a good deal to make the island in some distant future what it was

When Ceres, bounteous giver of the store,
With lavish horn gave ever more and more.

But the heavy taxes which the British government levies on the poor inhabitants weigh so much on them that it will take a generation before the island will begin to show, before better methods to cultivate the soil, and manuring, will have come into vogue, so that every farmer will have found the usefulness of the plowman's toil,

Wresting from the fruitful womb of mother Earth,
Heaping the garners and dispelling dearth.

Here, as in Malta, I could find no statistics about bees or honey. Although the government levies 2 pence on each hive, nothing could be found out positively. Only approximately could we find a few numbers.

Bee-keepers here depend on wild honey-plants. No clover or such plants grow here. As we have very long and dry summers, the scattering of honey-plant seeds would avail little or nothing on hard, uncultivated, sun-scorched grounds. And, again, neither Cypriote nor Syrian nor Palestinian would trouble himself or move a finger in such work. Cyprus would yield just as nice and as much honey if some intelligent bee-keeper would go ahead and put up his apiary in such places as afford pasture enough; but, to be sure, I would not change another locality to live among a degraded race, such as the Cyprians, so long as there are a good deal better places to live in.

Going round the town, a candle-manufacturer was busy manufacturing pure wax candles (mixed with 50 per cent of ceresin) for the churches, with which the island is well provided, belonging mostly to the Greek orthodox. The man had a big kettle on the fire, in which he put his wax to melt. A sieve, simply put inside the fluid mass, kept all filth out; and with a ladle he was taking out hot wax and pouring it over foot-long cotton threads hanging over the kettle by hundreds. As soon as the wax was cooled, another ladleful was poured over, till every thread had received some. The first was again cooled enough, and patiently he slowly went over his lot, every time thickening the candles. He had some weighing several pounds, while the greater part weigh 12 or more to a pound. The beautiful yellow candles go fast into the churches as offerings. For sick persons, or any other vow, candles are offered. The whole island may possess between 10,000 and 30,000 bee-hives, which rise and fall in number according to the seasons, and these average about 3 lbs. of honey and ¼ lb. of wax per hive, which is almost all sold on the island itself. Government taxes are 2 pence a hive.

As in all other Mediterranean countries, the bees swarm out in April and May, and drones are killed soon after. The honey is taken after the 24th of June (equal to our 7th of July), St. John's day. Taken before this the honey must taste bitter—not because it is mixed with the bitter flower of the squirting cucumber, but because St. John's blessing must fully come down on the hives and take away every bitterness! The honey is cut up into small chunks, and put into baskets away from robbers, to allow the honey to drip out. The wax is melted in a kettle and in a sack, and is squeezed out with the simplest machinery possible. Mr. Derwishian tried another day to open his nuclei; but after having got the first sting on his forehead in his life, he put on a veil and took me to his "lamblike" Cyprians, and gave them a few tablespoonfuls of syrup to quiet them down; but even this sweet inducement would not do. They went for us, all for the sake of Louis G.'s rough handling three days ago. I could hardly look at them, and we decided to have a turn about the town, but we were soon done. Mr. D. took me to silkworm raisers. He indulges in this branch, and believes he gets a better living from this than by buying bee-fixtures from England and comb-foundation machines from A. I. Root, on which he got along nicely making foundation, but ultimately he found it to be like the friend and bee-keeper I met last year in Malta, "a nice thing to put his money in, and have the pleasure of raising bees." He was told, years ago, of 20 to 50 lbs. average surplus per hive, but believes he was humbugged. He is almost *too* cautious, suspicious, and mistrusting of his fellow-creatures. What would he say if he could read reports like friend Osborn's from Cuba, or friend King's from Phœnix, Arizona? I wonder, too, why American bee-keepers have not established themselves long before in such a paradise. Why! we over here have none of the advantages of Arizona nor what Mr. King calls Cuba's disadvantages, excepting the great heat. With us the thermometer ranges only from 20° to 33° Celsius in the summer months. But here, besides the duty on bees and honey, the poor help we have to put up with, and the poor market which we have to seek in Europe and Africa, we have no forests to give us shade, but plenty of unhealthy districts. The grip, malaria, intermittent fevers, etc., have been hard on me for the past two years, and yet I have found time to work bees and make them pay; and I freely indorse Dr. C. C. Miller's answer to question 192, Sept. 1 GLEANINGS, concerning health. I think I should not have stood all these; but outdoor occupation, and a trip over the sea once in a while, have kept me up.

Cyprus being a little out of the way, steamers only occasionally touch here; and having no time to spare, and still no steamer here, I got into a sailing-vessel about to leave for Syria; but the wind being calm we lay in the road till night. After 24 hours of slow sailing we were still in sight of Mt. Tröodos, and could dream of "the beautiful Cyprus," and think

What dreams of Old-World tales flit o'er thy brow,
  O Tröodos, in thy calm rest to-day?
Vain visions of the future of the isle thou guardest
  in thy lofty majesty?

But next morning, 36 hours after we left, our vessel was being idly thrown about by the waves, without proceeding, from morning till night. The loose masts were squeaking as if to tease us and try our patience. The next morning a fine breeze filled the sails and speedily drove us forward. Just before night we could distinguish, many miles away, Mt. Lebanon.

I close my article on Cyprus with the words of an Englishman who says:

And now that all the ancient gods are flown,
Do ye who've made the island all your own
Bless with your ever civilizing care
The woful wreck the Turk has left you there!

How glad I was to leave the poor little vessel, in which my "first-class berth" was bare planks, after having been tossed about three days and three nights! I fancied the town of Beyrouth could not stand still.

PH. J. BALDENSPERGER.

Jaffa, Syria, Oct. 1.

HORIZONTAL WIRING.

IT WORKS PERFECTLY; HEAVY VS. LIGHT BROOD FOUNDATION.

Mr. Editor:—As Dr. Miller is desirous of having some one tell him of a more easy way of wiring frames than that described by him on pages 809 and 810, Oct. 15th GLEANINGS, I will give my plan, which I feel sure is both easier and better.

I have 500 or 600 combs, nearly all perfect, wired as follows with four horizontal wires: I make four holes in the middle of each end-bar, at proper distances apart. The upper wire should be about an inch below the top-bar. I use a machine of my own construction, operated on the principle of a tobacco-knife, with a lever. A pressure of the handle (lever), and the four holes are made at once, all in line in the center of the upright. This must, of course, be done before the frames are nailed up. Now nail the frames together. Nail two pieces, each ⅜x1x3 inches, on your workbench, at a distance so that the *ends*, which should point toward each other (thus —— ——), are ⅛ or $\frac{3}{16}$ inch nearer than the outside length of your frame. Now spring the end-bars in so the frame will just slip down between the ends of the blocks, when the frame will be held firmly, having the frame so adjusted that the blocks press exactly in the middle. To secure this, nail another piece ⅜ x 1 x the length of the frame, at the right point, for the bottom-bar to rest against, to hold the frame square while wiring. Now you are ready to commence wiring.

Drive in, partly, two ⅜ tacks in one end-bar, one near the top hole, and the other near the bottom hole, both in the edge of the bar. Commence by putting the wire in through the bottom hole first, then across the frame and through the lower hole in the other end-bar; now back; and back and forth again; now wind around the tack near the top-bar, and drive it home. Now spring the frame between the blocks and draw the wire *all it will bear*, rubbing the wire with the thumb and finger of the left hand to take out the little kinks while drawing with the right; wind around the lower tack, and drive it home and cut off the wire; pull out the frame, and it is wired in the best possible manner. You can almost play a tune on the wires. The spring in the end-bars will keep the wires taut.

I use foundation about 5 square feet to the pound; leave ¼ inch between the bottom-bar and lower edge of the foundation to allow for stretching; place in an upper story, and the bees will fill the frame every time. If in the brood-chamber, they may leave a space between the lower edge of the comb and the bottom-bar. I have never had any trouble with the foundation bagging except when there was not enough space left for stretching, when it will bag out between the lower wire and the bottom-bar. The wires will stretch and sag as much as the foundation. THOMAS NICHOLS.

Dixie, W. Va., Oct. 26.

[We could not understand why you did not have bulged combs if you drew your wires taut, until we came to the sentence where you said you use foundation *5 feet to the pound*. With such heavy sheets almost any wiring will work; but the fact is, such foundation is rather too expensive, especially if sheets from 8 to 9 feet to the pound will work just as well and give as good combs, providing that the horizontal wires are not drawn taut or just tight enough to take up the slack. When they are stretched, they are not as strong; and, besides, they will of necessity bow in the end-bars; and, worse than all, many bee-keepers will have "bulged comb." We have before explained that we have wired horizontally, using foundation 12 feet to the pound. As the wires were not drawn tight, there was no bulging; but it is impracticable to roll out on the mill foundation so thin as this, in large sheets. We find from 8 to 9 feet is about as thin as we can work it on the average. Foundation from four to five feet to the pound—that is, "heavy brood"—costs nearly twice as much as that 9 feet to the pound. In these days of poor and uncertain honey seasons, close competition with California honey and other sweets, the bee-keeper needs every cent he can save, and why not in foundation? For unwired frames it is advisable to use heavy foundation; but it is apparent that this is rather poor economy when the wiring costs so little.]

A GOOD REPORT FROM VERMONT.

SUCCESSFUL WINTERING; BEE-ESCAPES, ETC.

My experience in honey-producing is rather limited, as, previous to this season, it consisted principally of looking on while my brother handled the bees. But last spring he was suddenly called to Michigan, so he left his apiaries in my charge, with many a piece of good advice and warning injunction. As the bees last fall were well supplied with good honey, and were well protected in the chaff hive, they wintered finely, and at the opening of the season there were 84 colonies in two yards—63 in the home yard, run for comb honey, and 21 in an out-apiary run for extracting. All the spring manipulation necessary was to remove the burlap and put on a board, at the same time seeing that they had a queen and plenty of stores.

The little feeding that was necessary was done by combs of honey saved from last year for that purpose. This has always been my brother's method of feeding.

We use a hive similar to the Bristol, containing 10 Langstroth frames; and by the first of June they were packed with bees. They got a pretty good start on fruit-bloom and raspberries; and as soon as white clover opened, the sections were put on in the home yard, and tiering up was practiced, putting the empty super beneath. In the out-apiary, where extracted honey was produced, large top stories were used with a queen-excluder beneath. Not a pound of honey was extracted from the brood-chamber. By the first of August I found time to look around and count up; and I found by doing so that the home yard had increased from 63 to 100, and I had about 5500 lbs. of fine comb honey—an average of 87 lbs. per colony, and an increase of over half the original number. In the out-apiary I had increased from 21 to 31, and taken 2500 lbs. of extracted honey, or an average of 119 lbs. per colony, and an increase of one-half the original number. There were two imported Carniolan queens in the yard, and their bees swarmed early and often, but did good work.

My brother used 15 of the horizontal cone bee-escapes last year, and this year I made 15 more, and used them and the Porter exclusively in taking off both comb and extracted honey. I prefer the Porter; but the cone escapes as I make them do very good work, and cost only about 3 cents each for the wire cloth.

I had a hive on scales during the honey-flow. June 12 a new swarm from the catcher was hived on full sheets of foundation, such as we always use, with sections and foundation for comb honey on top. July 25th they had gained 110 lbs. The season began on white clover about June 1, and lasted until July 12, or until basswood was in bloom. The best daily yield from white clover was June 25th, and was 7 lbs. The best daily yield from basswood was July 22d, 6½ lbs. The best yield for five consecutive days was 5 lbs. per day from the 10th to the 15th of June. The poorest yield for 5 consecutive days was from July 1st to the 5th, when they neither gained nor lost, which was caused by rainy weather. The average daily yield from June 12th to July 25th was a trifle over 2½ lbs. per day: Counting the daily gains, we have 140 lbs.; and by subtracting 110 lbs., the difference in weight June 12th and July 25th, from the sum of the daily gains, we have 30 lbs. as the total evaporation, or nearly ¾ of a pound per day. Of course, the item of brood comes in here, but I have not estimated its value.

Mr. Root, I am glad to see you recommending wide thick top-bars. Ours are 1x⅜; and when the space above is correct, and the frames don't sag, there are few brace-combs and fewer burr-combs. For this locality my brother always did (and I think I prefer) a ten-frame hive, for we never fed but very little, while others with smaller hives were feeding all about us, and not producing larger averages. We use for winter packing a crate with cloth bottom. These are stored away in summer with the chaff in them, and are always dry and clean.

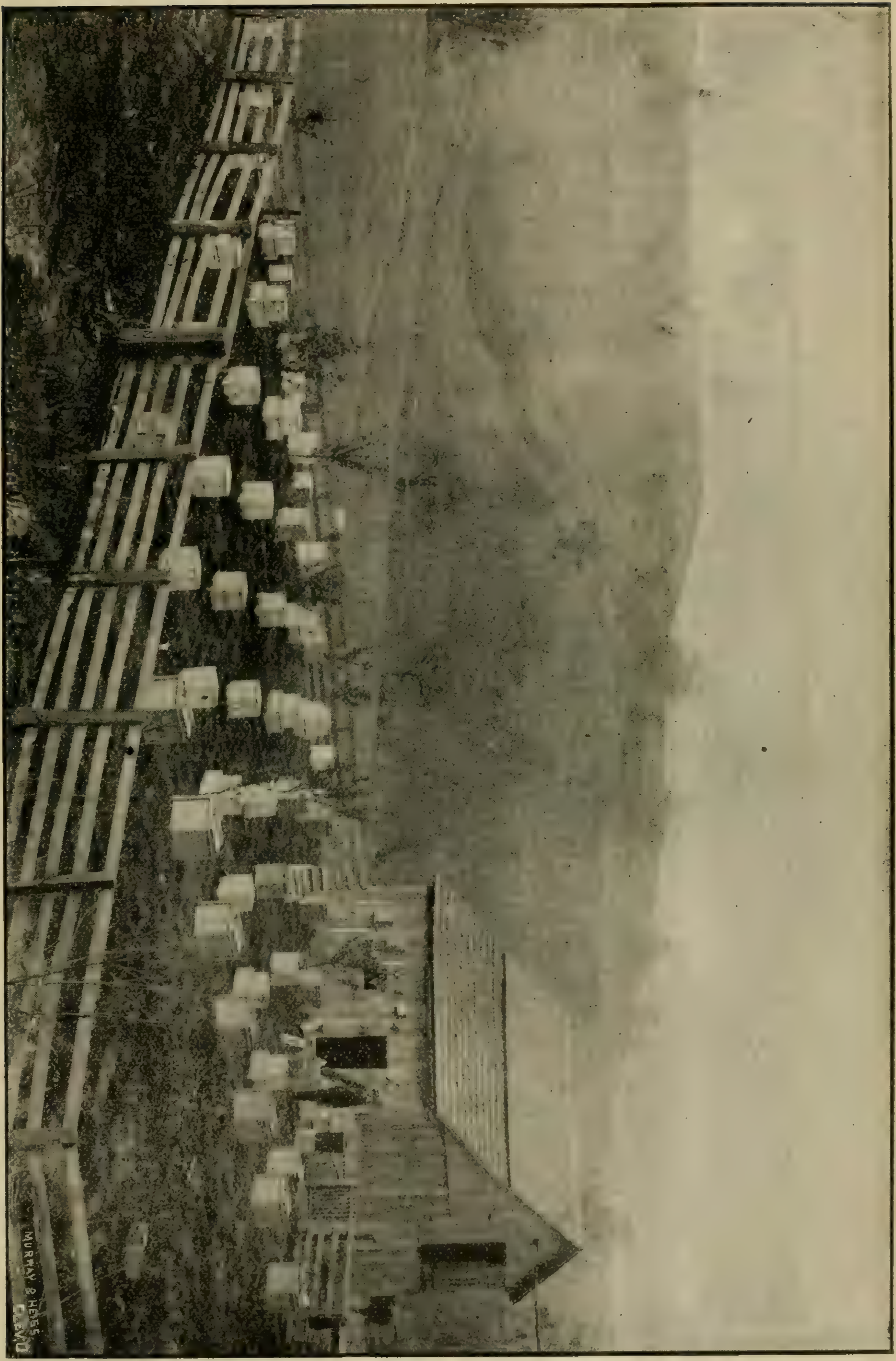
Should I undertake to tell *all* I have learned this year about bees you would have to get out an extra copy of GLEANINGS; but this I will add, that he who begins bee-keeping thinking (as some do) that the bees work for nothing and board themselves, and that it is all profit and no expense, all play and no work, will, in a very short time, find that he must work with both mind and muscle; and he who becomes discouraged at the drawbacks does not deserve the reward. W. G. LARRABEE.

Larrabee's Point, Vt., Oct. 23.

THE UPS AND DOWNS OF AN A B C SCHOLAR.

APIARY OF SYLVESTER HILLARD.

Mr. Root:—I send you a view of my apiary; and if it is worthy of space in GLEANINGS I should like to see it. Farming was my occupation until 1887. After a long-continued sickness I decided to start a small apiary. In the spring of 1888 I purchased 25 colonies of bees of Mr. A. Wilkins, paying $150 for them. I also purchased about $100 worth of supplies of A. I. Root, and thought I would start a small supply-trade. The season of 1888 being a short one, I got 800 lbs. of box honey in three weeks. This was sold at 14 cts. a lb., and I became very enthusiastic in the line of bee culture, reading all the bee-literature I could get hold of. I decided to increase my stock to 50 colonies by artificial swarming. This was soon done. The wintering problem was my next stumbling-block. I finally decided to put up a building for the purpose. This was done, and the bees were set in for winter. They were put away about the 10th of November, and remained until some time in January, when they were set out for a fly, and then put back for the rest of the winter. Along about the last of March I found that the bees were dying by being confined too long. As soon as the weather was favorable they were set out on their summer stands. The result was a backward spring, and the bees died off till but a few were left. Being fully determined to have more bees I purchased 25 three-frame nuclei of Dan White, of New London, O. The season of 1889 being a favorable one, the result was, after selling quite a number of colonies I increased my stock to 43. These I wintered on their summer


MURRAY & HEISS
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APIARY OF SYLVESTER HILLIARD, QUAKER CITY, OHIO.

stands, losing only about one per cent. During this time my trade had increased to more than double the previous year.

SYLVESTER HILLARD.

Quaker City, O., Aug. 7.

HALF-STORY SUPERS FOR EXTRACTED HONEY.

A VALUABLE PAPER BY F. A. GEMMILL, VICE-PRESIDENT ONTARIO BEE-KEEPERS' ASSOCIATION.

At the request of a number of Canadian bee-keepers, we publish a paper read by F. A. Gemmill, at a meeting of the Brant Bee-keepers' Association, on the subject as above. Our space is so crowded that we are unable to publish, as a general thing, papers read at conventions; but as this one is so valuable, we are glad to give it space, if for no other reason than that we have been requested to do so.

As promised, I will attempt a short article on the advantages of using a super or half-story (in other words, a case containing drawn combs half the depth of those used in the brood-chamber) for the production of No. 1 extracted honey, and as an adjutant or assistant in securing a first-class crop of comb honey, such as no one need be ashamed to place on any market.

I know there are objections to a practical apiarist having different sizes and styles of hives and combs in his apiary; still, experience teaches me, at least, that the advantages outnumber the disadvantages, especially if the outside dimensions of the hives and supers are alike.

First, I would ask, why object to a half-story containing combs such as described, any more than the use of supers containing sections for comb honey, so long as the complete tiering up of all is not interfered with? Second, Why should bees be allowed to cling to the brood-chamber in the fore part of the season, depositing honey therein, only to crowd out the space which should be occupied by the queen? Simply because there is not sufficient inducement to entice them to deposit it above.

Now, we all know the giving of a full story in most localities at the time when more room is needed, is rather more space than is necessary, and consumes too much of the heat required in the brood-chamber, unless the hives are chaff-packed; and, again, the giving of a super containing sections, especially if they are not nearly all drawn out the previous season, does not always succeed in gaining the desired end. There is, however, no trouble if a half-story of drawn combs is first given, as such can compose a part of the brood-chamber proper, sufficiently long to secure the point sought for. The market requiring choice grades of honey is yearly becoming more marked; particularly is this the case in regard to variety and quality; therefore I venture the opinion that, while honey may always be honey in the proper sense of that word, still all kinds of this article are not alike to a consumer any more than all kinds of butter, or, in fact, any delicacy usually found for sale, and no one knows this better than bee-keepers generally. Now, in order to secure the different varieties by themselves as nearly as possible, no other system offers better facilities than the half-story system. There are localities and hives where it is not only advisable but necessary to extract from brood-combs in order to secure the honey of poor quality and flavor from being deposited in sections (a place, by the way, in which the very finest honey only should be stored) or placed in combs of full depth, when added above the brood-chamber, thus completely destroying the appearance and flavor of a large quantity of what ought to have been a first-class article of clover honey; and while my own locality does not differ materially from the one quoted, still my mode of procedure is somewhat different; not, however, that it is by any means new, but because I am not an advocate of extracting from combs containing brood, especially unsealed larvæ, as I believe brood in brood-combs and honey in store combs is the proper place for both; in other words, the queen in one apartment, and the honey in another, at all times, except, of course, during winter. And right here I trust you will pardon the digression when I state that incalculable damage is done yearly from such work, independent of the risk of encouraging, if not propagating, the great curse of our pursuit; viz., foul brood.

But, to resume. The method adopted by myself is as follows: About the first of June, or a little earlier in some instances, as soon as the queen requires more room (I use the eight-frame Langstroth and New Heddon hives), the hive is opened, and the face of every capped cell of honey is bruised by simply drawing a knife flatwise across the comb, first driving the bees away with smoke, or, if necessary, shaking them from the combs altogether, when a half-story of drawn combs, as described, is placed over the brood-chamber, and the cover to the hive replaced for two or three days, when it is again opened and a queen-excluding honey-board placed between the two, as egg-depositing in supers is not encouraged, although the presence of a few eggs will do no harm at this juncture, providing the bees are not allowed to build queen-cells and a young queen reared and destroy the one below. It is, of course, presumed when the excluder is inserted, that the old queen is in the lower portion of the hive. Reversible frames are said to accomplish this end, if the reversing is done at the proper time, without the necessity of bruising the face of the comb; but not having had an extended experience with such I can give no decided opinion, although I do not see why such a course would not work. This, however, I do know: the dividing of the Heddon hive, viz., placing the top half below, and the bottom part above, will effect the same purpose.

There will now be no difficulty in securing the honey in its proper place, after it has been carried upstairs, from this time henceforth. You will please observe there is no difference up to this point, whether or not one is working for comb or extracted honey, as that can be determined afterward, as the strength of the colony and strain or race of the bees are factors that must or ought to be considered, especially in producing the former article.

We will suppose extracted honey is desired. If so, all that is required is to raise up the first half-story or super containing the dark honey stored from the brood-chamber, and any that may have accumulated before the flow from clover has commenced, and add a second, which will, of course, now be filled with clover, while a third or fourth may contain basswood or thistle, as the case may be, and yet all can be thoroughly ripened on the hive, as it should be, for many reasons too numerous to mention here. If, however, for want of sufficient combs you prefer extracting the different kinds before thoroughly ripened on the hives, it is an easy matter to place one of the several bee-escape boards (preferably the Porter spring contrivance, which, by the way, is only beginning to be half appreciated as it ought to be) under each top story, and free the supers from bees in a few hours. They can now be extracted and again returned to the hives. This way of managing to one who has never before tried the escape system, will, I fancy, become permanent with them, as the pleasure of removing shallow supers, containing nothing but honey, has only to be tried once to be appreciated.

In the event of your being a producer of comb honey, all that is necessary is to tier up as for the extracted article. With this advantage, only one case of sections need be given any colony, unless considered advisable to do so, and this not given until the honey is coming in rapidly, and the bees ready and willing to fill and seal them in short order, and thus present you with an article as white as snow, instead of travel-stained, propolized sections, sufficient to disgust any one from purchasing, even at a low figure. Again, I find I can get more and better comb honey with fewer unfilled sections than by any other process; in fact, it is not at all desirable to carry over any partly drawn sections from the previous year, as, in my own experience, they are not filled and sealed any sooner than a new case of sections containing full sheets of thin foundation, when added under a half-story as described.

The only valid excuse against using these half-stories is the expense and the time consumed in handling the double number of frames. As to the first reason, I am free to admit the cost is a trifle greater; still, if protected by outside cases until clover commences to bloom, the material comprising them need not be any thicker than ⅜-inch stuff. As to the second reason, I find it easier and more expeditious to uncap and extract two sets of half-depth frames than one of the full size, as one sweep of the knife cleans the face of every comb in an instant; and if your frames are wired as they ought to be, even in half-stories, notwithstanding what others may say to the contrary, and your extractor is capable of taking a full set of eight frames, or four of the large ones, as with myself, no time need be uselessly sacrificed.

Now, friends, try them. There is, however, no necessity of going into the experiment in a wholesale manner; a few at first, and more afterward if you need them, will be a wise plan to follow. I know they are gaining ground yearly, and this fact alone should be a guarantee that they are not a useless appendage in the apiary; and, as I am about concluding, let me add: At all times have plenty of store or surplus combs, no matter of what style or depth, as they are good capital at any time, especially in a poor season like the past, as bees stored in such and did well, while those in sections or on frames of foundation did little or nothing.

Lastly, do not be afraid to put your name on all honey offered for sale, at the same time stating the source from which it is secured, and thus prevent confusion and suspicion. Too much need not be on the label, but it should be in large print and easily understood.

THE TRUTH ABOUT THE SELF-HIVER.

C. H. DIBBERN SUGGESTS AN IMPROVEMENT.

I have read with much interest the article of Mr. West, on page 763, reporting discouragingly as to the success of the Alley hiver. I had intended to report my experience sooner, but have waited to hear from others, and see how they succeeded, before making my report. In 1890, when Mr. Alley brought out his self-hiver, the idea struck me so favorably that I at once sent to him for a sample. In due time the hiver was received; but in studying it a while I concluded it was not just right; at any rate it did not exactly suit me. As I was that year starting an out-apiary, the matter of hiving the swarms was a matter of considerable importance, especially as I found it rather difficult to get suitable help. Another serious difficulty was, the place where the new apiary was located was surrounded by tall trees from which it would be a very difficult matter to get the swarms, even by an expert. To settle the matter, and at the same time give the new hiver a thorough trial, I made up 100 of them after a pattern of my own, though not greatly different from Mr. Alley's. That year the hivers were put on every hive in the new apiary, but swarming proved almost an entire failure, as well as the honey crop, as I had but two swarms issue through them, neither of which hived itself. Fortunately I was at the out-apiary when they swarmed, and had a good chance to see how the bees and queen acted. The bees in both cases soon settled on trees, and the queen ran up and down the perforated zinc in front of the hive in great excitement. The opening and wire cone were on the ends of the hiver and the empty hives were placed by the side of the one expected to swarm. I soon saw that the queen would persistently run up the perforated zinc front, and pay no attention to the wire-cloth tube, through which she was expected to pass. I do not believe she would have passed out of a two-inch hole one time in four, if placed at the end where it was darkened by the tube leading to the empty hive.

This year the hiver had certainly proved a failure, but it had given me a valuable hint. I can agree with friend West, that the hiver does prevent swarming to a great extent. The two swarms out of the 100 hives I had did not issue till the 28th and 30th of June, while the bees at the home apiary, without hivers on, had swarmed for weeks. So I concluded that, as the drones were trapped as fast as hatched, swarming was not only to a great extent prevented but delayed as well.

By comparing the two apiaries I found that about ten per cent of those at the home apiary, without hivers, swarmed, and only two per cent at the out-apiary swarmed with them on. The amount of honey secured was about double as much at the out-apiary. There is not much difference in locations, and so I concluded that putting on the swarmers did not lessen the amount of honey secured, if it did not actually increase it.

While I had not succeeded in hiving a single swarm, so well was I satisfied that the idea was practical that I remodeled the hivers I had, and made 100 more on a new plan for the season of 1891. Now, to give the reader an idea of the new hiver I will try, as best I can without an illustration, to describe it.

THE SELF-HIVER I USED IN 1891.

I use common well-seasoned lath, planed, and make a frame exactly the size of the hive-fronts. The pieces are nailed so as to make a space as wide as the lath, in front of the hive, and covered with the perforated zinc. On the upper piece I place the wire cones, with openings not less than ¾ inch, so drones will not get clogged there. The wood should be painted to prevent warping, and is hooked to the hives by my malleable hooks, which are just the thing.

Now for the empty hive to receive the swarm. I make a similar frame, only it has a one-inch hole bored through the bottom piece, and only one wire cone on the inside. For a bottom to the empty hive I use an escape-board with the front strip removed, to make an entrance for the expected swarm. The empty hive is now placed on top of the super, on the hive expected to swarm, and the two hives connected by a leader, made of lath, and covered with the zinc in the form of an inverted V. This, you see, readily leads the queen, in swarming, past the super, and I have another leader just twice as long in case I want to put on two supers.

JUST WHAT THE HIVERS WILL DO.

This year I decided that I could, with the aid of the hivers, run both apiaries, some seven miles apart, alone. I made my hivers during the winter, and had them all ready as swarming approached. These I placed on the hives, both at home and at the out-apiary as fast as colonies became strong, or showed signs of swarming. I soon had them on all my hives, except a few weak ones, and awaited results. Swarms soon began to issue, and would almost invariably hive themselves all right; but they were very small, as so many of the bees would return to the old stand. I soon found that this was to be the rule, and most of the self-hived swarms would contain only from a pint to a quart. The queen would be there all right, however, and generally enough bees in front of the new hive to show that the bees had swarmed. Of course, such swarms would be useless if left to themselves, and I am not that kind of a bee-keeper. Now, the way I generally managed is about this:

If a swarm issued while I was present I would wait till the bees were about all out, and the queen and drones in front of the new hive, when I would remove the old colony and put the new hive in its place, also giving them the supers. In due time the swarm would return and go into the new hive. Now, in order to make the swarm still larger I would put on a bee-escape board, with an escape in it, as a cover for the super, and put the old hive, without bottom, on it. I allow the old colony a small entrance of their own. The old hive is left there for seven days, on the Heddon plan, when it is removed to a new stand. During these seven days the bees just hatching are constantly escaping to the new colony; and when the hive is finally removed the homeless bees return directly to a point over their old entrance now occupied by the new swarm, and are peaceably received there. Perhaps when I go to the out-apiary, as I do every three or four days, I find that several hives have swarmed. On one occasion I found seven. Usually the new hives will contain the queen, a good many drones, and a pint or two of workers. Now, as I can not tell just what day they swarmed, and can not always be on hand at just the right day to remove the old colony to a new place, I pursue a little different course. I put the new hive on the old stand, giving it the supers, and brush off about three-fourths of the bees from the combs of the old hive, removing it at once to a new location.

In order to guard against a second swarm I cut out all the queen-cells on my next visit, and drop in a virgin queen from my queen-nursery, which I keep running constantly during swarming time. Of course, this method is varied somewhat, according to circumstances; and one must do some thinking, and use good judgment, to succeed. If you expect a "patent hiver" that you can put on an empty hive, and let the bees do the rest, you will surely be disappointed with any kind of hiver now in sight.

Do I consider the hiver a good thing? Well, I certainly do. While it is not all I could wish, it will enable me to do much more than I could without it. Mr. Manum wrote, last spring, that, with his system, he could manage seven apiaries by removing queens just before swarming. Well, I can't do that, and I should not like to work at that rate, even if I could. With the self-hiver and the bee-escape, and other conveniences, I believe I could run four apiaries of 100 colonies each, the year round, without help.

As to my hiver, or Mr. Alley's, as he has a patent on the principle, I will say that I have none for sale, and am not interested one way or another. I shall pay Mr. Alley for the right to use them, although mine is very different from his; but the principle is the same; and as I wish to be a law-abiding citizen I recognize his rights, as I think all ought to do.

The worst difficulty to be overcome is to keep the drones from getting clogged in the tubes. Now, a live drone will readily pass through a wire cone with a ¼-inch opening; but the bees, in their efforts to remove the dead drones from the hive, will get them fast in the cones, and they become stopped up. To remedy this I use an open wire cloth from which I can make openings ⅜ inch. This, I believe, will entirely overcome the difficulty. On one occasion I found two swarms had doubled up, and that time I had a good-sized swarm in the new hive, and the bees covered the fronts of both hives. Mr. Alley says that two or more colonies swarming at once through the hivers will each return to its own hive. I think he is certainly mistaken in this, as they will not do that for me. They will usually all pile into one hive, making a large swarm. In such case I at once divide up the bees to suit me, but I had only one such swarm out of about fifty.

I find it a good plan to keep the hivers on the new swarms for several days, as quite often the bees will try to abscond. I had one colony issue three times after hiving, before they became satisfied. But this is not any worse than where swarms issue and are hived in the old way. The advantage in keeping on the swarmer is, that they can't get away; and why not keep them on till all danger of swarming is over? Of course, the swarmers must be removed from the old hive, to give the young queen a chance to mate.

Mr. Alley may not yet have his hiver perfect, but I am sure he will succeed. The trouble with him is, he tried to make the queen run sidewise and downward, while her motto is "Upward." C. H. Dibbern.

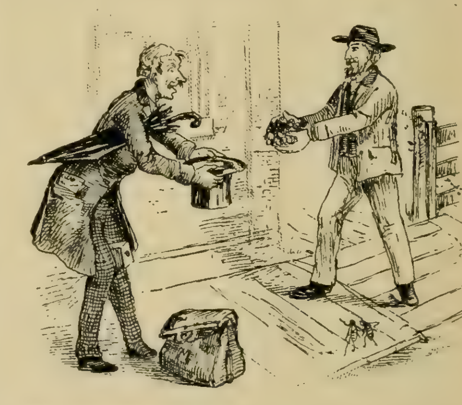
Milan, Ill., Nov., 1891.

[You have greatly simplified as well as improved the automatic swarmer. It is indeed the natural tendency of bees and queens to crawl upward, and, of course, we ought to take advantage of this characteristic. We shall listen with interest for further reports, and in the meantime we may give our readers an engraving illustrating more exactly Mr. Dibbern's idea.]

RAMBLE NO. 47.

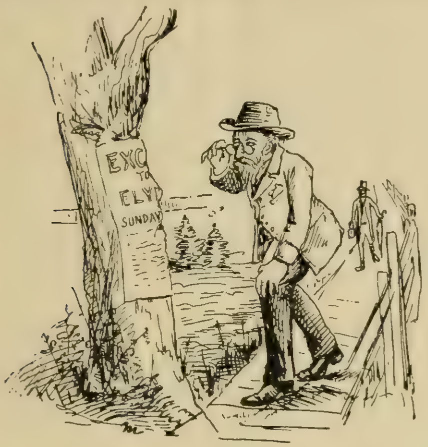
IN MEDINA, OHIO.

From the refined and artistic air of Cleveland we journeyed directly south to Medina, and arrived at this noted town about 6 P. M. As we emerged from the crowd on the depot platform the first person we met was E. R. Root, whose face looked as pleasant and familiar as it did upon our camp of bee-keepers a year ago at Lake George. After a brotherly grasp of hands he led the way across the track, and we were before the establisment with which thousands of bee-keepers are familiar. The building, though very faithfully represented in Gleanings, the object itself, when we stand before it, has an individuality about it which a print can not convey. The factory had just shut down for the day, and nearly all of the workmen had departed. There was a small group at the further end of the building; and as we approached we recognized A. I., the head of the concern, and were introduced to Mr. Calvert and others. Brother A. I. met the Rambler with a double handful of those large, ripe, luscious Gandy strawberries. The Rambler was somewhat "flustrated" by so much coming upon him at once. Public attention, however, was soon directed to another subject. Some one made a remark about a Sunday excursion over the new railroad. It seems that Bro. R. had given the land to the new road with some limitations, etc. Sunday excursions had to ask



RAMBLER GREETED WITH A HANDFUL OF STRAWBERRIES.

Bro. R.'s consent, or did so out of respect; and, just as we bee-keepers would expect, and just as the superintendent of the road said he expected, Bro. Root refused permission. There seemed to be suspicions in the air that the railroad would run the excursion, though, and a large poster on a tree at the other end of the factory gave strong coloring to the suspicion.



SUNDAY EXCURSIONS.

Just then a young man was passing the tree. He was hailed, and asked what the poster meant. The youth was evidently in a hurry, gave a glance, and shouted what sounded to the Rambler like "get there, Eli," and disappeared in the gathering shades of evening. Silence fell upon our group for a minute. A. I. was bound to look into that Sunday-excursion business, and a few rapid steps placed him before the tree. Getting into position with eyeglasses he read, "Band concert at Elyria." He immediately straightened up with an audible "humph!" and sauntered back with his hands in his pockets. He didn't whistle; but a far-away look came to his visage, and he proposed to go to the residence of E. R. and see the baby. The babe was in sweet repose, however, and the Rambler sat down by the hearthstone of E. R., and somehow it was past eleven before we retired. The next morning was devoted to looking over the factory. Every department was busy, and apparently moving with the regularity of clockwork. After a round through the factory the Rambler was turned loose. We had been introduced to Mr. Spafford, and were soon looking over those fine Italian bees with him; and in order to make him as busy as possible, several swarms issued. The fountain pump and wire-cloth swarm-catcher were successfully used, and in a very short time after leaving the hive a swarm would be in a new home ready for business.

Owing to some improvements in the bee-escape line, the house apiary was receiving more attention than usual, and with encouraging signs for its future usefulness. The apiary looks about as it does in print; but the grass was getting the start of the apiarist, and it also seemed that A. I. had forgotten his former hobby of pinching off grapevines, or had left it to some one who hadn't the hobby on. The vines and grass were properly trimmed in time, and this apiary, like all others, has its times of fitness and unfitness.

While we were interested in many things in the mechanical line, we were particularly so in the automatic machine for making the rolls for foundation-mills. It might almost be called an automatic engraver. Its adjustment and operation were to an infinitesimal part of an inch, and punches can be adjusted to make a round or hexagonal cell.

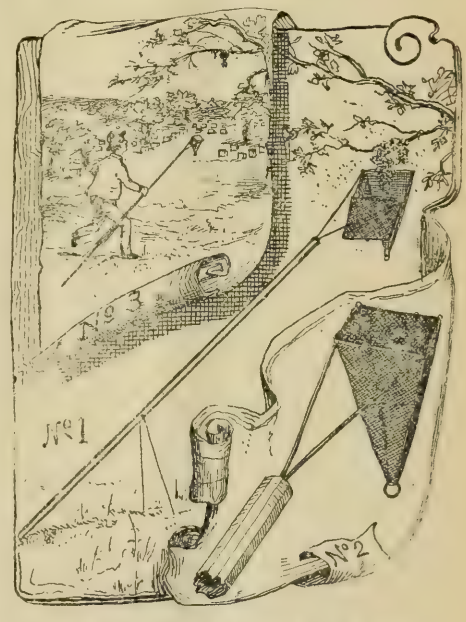
Another machine to facilitate rapid work is the hive-dovetailer, which will automatically dovetail 25 sides at once.

The gallery of Bro. Root's establishment had a great fascination for the Rambler. We got there every chance we could. It was very easy of access, as it was in the basement. It was where the girls made the foundation. Several tons of wax are manufactured into that beautiful foundation with which so many are familiar.

About 11 o'clock (June 26) A. I. found the Rambler and conducted him safely over the barren wastes the new railroad had created, and into the midst of that wonderfully productive but small farm. There were enough of those luscious berries left to give us our fill, and crops of various kinds in such rank growth as to please the lover of thrifty farm crops. Bro. R. pointed with evident pride to his rows of potatoes, and thought he had a little the best in the State.

A horseman and boys were at work in the field, and were kept constantly going in some part of the grounds. From what we saw here it is evident that many men are wasting time and strength by cultivating large areas when smaller ones well cared for would produce as much if not more.

After dinner E. R. drove around with a two-seated canopy-top wagon. E. R. and *we* occupied the front seat; Mrs. Root, Miss Smith, and the baby the rear, with a suspicious-looking basket under the seat. Our destination was the Shane yard. From what we had read in a certain bee-journal about E. R.'s driving we expected to just fly over the ground; but we were about two hours going seven miles, and nearer three getting back. The Shane yard is embowered in a thrifty young orchard, and nearly all of the hives are of the new persuasion—dovetailed and Hoffman frames. When



MANUM SWARMER AND HOW IT IS USED.

we got ready for business we came to a standstill for the lack of fire—no matches in the crowd. A small boy just then emerged from the tall grass, and was offered a nickel to run to the house, almost a quarter of a mile away, to get some. A nickel would not be accepted. He was a generous boy, and ran for nothing; but when we afterward found a large piece of new comb with honey in it, it was given to the urchin; and from the way he ate it while sitting on the rail fence it was far better than silver or gold. The bees were just booming; hives were being filled, and preparations were being made to swarm; and the examination was made just in time to prevent bad results. This examination was our first experience with the Hoffman frame, and we were surprised to see the ease with which they were handled. The Rambler has handled the Heddon hive for the past three years, and had many times thought that a deeper frame would be more suitable; but after manipulating these frames, we mentally asked the question why, and could get no satisfactory answer. While the Hoffman frame has its merits, and allows the handling of hives to a certain degree, it does not attain to the point secured in the Heddon hive. We hope to have more to say about these hives in the future. While manipulating the bees our Clark smoker-spring gave out; and Ernest (or the Rambler) said, "Oh for a Bingham!" We guess it was Ernest who said so; but we took the smoker in hand, and, with both hands, sent the smoke where wanted.

THE URCHIN, AND THE HONEY THAT WAS BETTER THAN GOLD.

Every colony was examined; and after our arduous labors we retired to the shade of a tree where the ladies had spread a bountiful repast from that mysterious basket. We all did justice to it while the baby kicked and crowed contentedly on a corner of our blanket.

It was at a late hour that night when we sought our respective couches.

Bro. Root has a complete stock of lumber, and, being determined to keep the lead on sections, 40 carloads of basswood were rolling in from the north. Some of Mr. Root's workmen have been with him for 25 years. Some have one or more fingers off, and all we conversed with seem to be very genial people. We said good-by, and left the busy reality behind, while the vision of it is still with the RAMBLER.

[E. R. R. does not now drive the same horses that used to make such strides over the road. One of 'em, you remember, got stung and broke the thill, and pushed the sharp end into his side, piercing his heart. That ended our record-breaking with horse No. 1. We could not be content, and so we had to have another high-flyer. After this one had run away with us, and cut up several other undesirable capers, well, we—*sold her!* and from that time were cured of the horse hobby. Then we got on to the bicycle hobby, and you know the rest.

When Rambler came, the two big horses were out teaming, so we secured a livery. (Mrs. Root has since ordered E. R. never to get that "slow poke" again, and we never did.) That is why we did not make our old record.

On arriving at the Shane yard we were very much "flustrated" to think we had not thought of matches. After saying so much about general preparation, and *looking ahead*, to have a distinguished bee-keeper find us at an out-yard without a *match* to light a smoker, was mortifying indeed. We thought we had told the boys to take down a whole box, and leave them there for use; but the box could not be found. The next time we went down to the yard, the first thing we put into the wagon was matches—a "hul" box.

As if to add to our further embarrassment, when we got further along and smoker lighted, the staple to the smoker-spring pulled out, as Rambler says; and it so happened, too, that we were on to the crossest hive in the whole apiary. That Bingham smoker? Well, yes, it is better for some emergencies, and one is when a Clark smoker-spring pulls out. This is the second time in our experience that this happened; but we are now at work on a spring that won't behave so badly. Rambler did not see our latest improved smokers; and since he has been here, it has been still further improved, so that the blast is *almost* as dense and killing as that from a Bingham or Quinby.] E. R. R.

PUNIC BEES.

A WORD ABOUT THAT AUTOMATIC SWARMER.

Friend Root:—You must know that we fellows who have the Punic bees have occasion to laugh, and as often, too, as those people who never have seen these bees give their opinion of them. You gave in GLEANINGS of October 15 what you considered pretty strong testimony for the new race of bees. The strong testimony was given by parties who have the Punic bees; but as these parties have this new race of bees for sale, their statements were of little account, as, in order to offset their statements, you gave what *you* considered the other side of the question. The other side was shown in an extract taken from the *British Bee Journal*, and this notwithstanding the fact that the editor of that journal states that he knows nothing about these bees and has not even seen one. Now, friend Root, do you consider that a fair way to give both sides of a question? I have seen these bees, and have tested their qualities in all respects but that of wintering. Having had several months' experience with the Punics, and found them as good as was claimed, what am I expected to say of them? Do my friends expect me to give any thing but truthful statements concerning their qualities?

You say you could see no difference between the Punic and black bees. This is no evidence that the bees you bought are not Punics.

A man came into my apiary a few weeks ago, and, of course, was shown the Punic bees.

"Why," said he, "they look like black bees."

"Do they?" said I, "let's see."

I went and got a black bee, or what you and others call black bees, and compared it with the Punic. He readily saw that the Punic bee was black, while the common bee was brown in color. Now, our native bees are not black—they are brown. When you have had the Punic bees one season, or long enough to have them fly out and work, you will find that their true color is as black as the ink used to print these words. Not only will you see the difference in color, but in all other characteristics peculiar to the honey-bee.

While speaking of one race of bees being marked like another, let me say that there are hundreds of old bee-keepers who can not tell the difference by their markings between the Italians, Holy-Lands, and Cyprians. Only an expert can distinguish any difference in their color and general markings. Now, does any one pretend to say there are no such bees as Cyprians and Holy-Lands because they are marked so much like the Italians? Why doesn't some one who never saw any of the yellow races get up and say he does not believe there are any such bees? Would not such a person be as consistent, and his evidence as good as that of the editors of the *British Bee Journal* respecting the Punic bees?

Well, friend Root, I can show you one of the best colonies of bees to be found in America. Their hive is so full of bees that it requires 14 L. frames to accommodate them with all the room they actually need. The bees in this colony are as gentle as flies, and their color is as black as the blackest thing you ever saw. This colony has stored 25 more pounds of honey than it needs to winter on, all of which was gathered since September 1st. Very few of the bees in this colony were old enough to fly till the last week in August. These bees I call Punics. The queen came from Africa. I believe this, as I know the importer of these queens, Mr. Hewitt, is honest and fair.

So far as my experience has gone with the new races, I unhesitatingly pronounce the Punics best of all. They seem to possess the most desirable points and the fewest undesirable features of any bees I ever saw. If, after a fair test of this new race they do not maintain their reputation as now established on short acquaintance, then I will cry them down as I did the Cyprians, Holy-Lands, dark Carniolans, and albinos.

THE AUTOMATIC SWARMER.

One of your writers, whose article appeared in a recent issue of GLEANINGS, gave a very unfavorable report of this new device for self-hiving a swarm of bees. Now, I am free to say that the swarmer was not a success in the hands of all who tried them, while in the apiaries of others they were a perfect success. When the unfavorable reports are all in, I will try to so explain matters that all can make the swarmer work successfully. HENRY ALLEY.

Wenham, Mass., Oct. 24.

[Although Mr. Cowan did say he knew nothing of such a race, yet if you will read over his footnote again you will observe that he referred more particularly to bees of that *name;* and yet it is pretty evident that he has a good general knowledge of all the bees from Africa. He describes quite minutely those kept by the Kabyles, bees small and black, and great propolizers. The inference was, that these were the same race as the Punics, and these, Mr. Cowan says, were discarded. Still, these may not be the same bees, and we await with interest the further development of the Punics.

Mr. Alley evidently does not have in his locality the small black bees that we have in Ohio. It is generally understood that there are two kinds of common bees, although they are quite alike in general characteristics. One is described as a large brown bee, and the other as a small black bee. The latter do resemble very much the bees from our select tested Punic. It is too early for us, however, to judge of the general characteristics of the new bees, especially from their general appearance. As described in our editorial, in the issue for Nov. 1st, they seemed to be quiet on the combs, like Italians.

In regard to the automatic swarmers, we have seen only two good reports of their use. Although we do not doubt but they have worked well, as you say, it rather strikes us that Mr. Dibbern has made an improvement. See his article elsewhere, on this subject in this issue.] E. R.

THE HOFFMAN FRAME, ETC.

THEIR POINTS OF MERIT REHEARSED.

I have been taking quite an interest in the discussion pro and con lately, relative to the Hoffman frame. I notice there is quite an interest shown among the bee-keepers in regard to which is the best frame to use. I for one am willing, and not only willing but glad, to put in my testimony in favor of the Hoffman frame, although I have had but two years' experience with it; but I think it far surpasses the old style of hanging frames in more than one way. In the first place we are sure that our frames are spaced evenly through the hive; but with the hanging frame we have to use the forefinger as a spacer; and in pressing one frame up to the other we sometimes crowd the last-placed frame up closer to the other one, and then where is our bee-space gone? But with the Hoffman frame we can put one frame up as tight to the other as possible, and we are still sure of the bee-space being there. Then, too, when we want to move some of our colonies to an out-apiary, or return them home again, we do not have to lose half a day in getting the frames in shape so we can be safe in loading them on to a wagon; for all there is to do is to be sure to take enough entrance screens with us to close the entrances of the colonies we wish to move, and drive two wire nails into the cover to be sure the bees will not get out that way, and then we are ready to put them on to the wagon or in the cars, and feel safe that the bees will not get crushed between the frames, for there is no way for them to get loose unless the hive should get broken open.

Then there is a great advantage in handling them in the apiary. As you can take out as many frames as you like at a time, if you want to lift one of the frames it is a very easy matter; or if you want to lift three or more it is just as easy; so we find that, in manipulation, they are just the frame we want, for we can divide a colony (if we practice this way for increase) without tearing it all to pieces as we would have to in the old-style hanging frames. We can also leave them in a compact cluster. You see, I am in favor of the Hoffman frame.

The next question of importance with me is hives; but I can not make up my mind just what kind of hive I want. I have tried the Simplicity, but I find that they are not quite the hive to winter safely in, so I have now about fifty of the Root chaff hives in my home apiary. This hive seems to be about the one for wintering in; but they are so very large and heavy that it needs two good strong men to handle them; or, if one has a small farm and a good yoke of oxen, he might get along all right; but I think they are just about right for Michigan weather.

I have 55 of the one-story chaff hives, after the M. H. Hunt pattern, which I think are very good hives for all purposes, although they too are quite heavy to handle; but then, if we wish to combine a summer and winter hive together we must expect to have a heavy hive to handle; so you see we shall have to take the bitter with the sweet.

My bees have not done as well this season as I expected. Although there was a profusion of blossoms they did not seem to yield any honey whatever, and they seemed to gather only enough honey to live on; but when basswood commenced to bloom they just rolled in the honey for five or six days; then there was a little honey brought in from the white clover. All of the bee-keepers around here looked for a good flow of fall honey, but there we are disappointed, for the fall flowers do not secrete any nectar to speak of. The goldenrod does not bloom out as bright this fall as it has in former years; for as soon as it starts to bloom it turns brown and does not come out with the bright golden color. Can you tell what causes this? This year I worked my home apiary for both comb and extracted honey; but next year I shall work for comb honey, for I think there is more real profit in it for the bee-keeper than there is in extracted. GEORGE N. CORNELL.

Northville, Mich., Oct. 1.

THE ADVANTAGES OF CLOSED-END FRAMES IN WINTERING.

HOW BEES BUILD COMBS IN BOX HIVES.

I took GLEANINGS out of the mail this morning, and find Mr. A. N. Draper says, on page 841, "One of the greatest advantages of the closed-end frames you don't seem to appreciate; and that is, in wintering and breeding up in the spring, as the closed-end frames prevent all circulation around the edges of the frames."

On page 317, April 15, Mr. P. H. Elwood says: "Mr. Quinby observed, soon after the introduction of the Langstroth hive, that bees did not winter as well in them as in box hives, on account of the open frame, and he remedied it by making his frames closed-end." "Abbott, late editor of the *British Bee Journal*, says: 'There is nothing more unnatural in hive arrangement than the practice of making or leaving spaces around the frame-ends.' Bees usually close up the space between the combs and frame-ends or side-walls of the hives, as far down as honey extends."

Last May, soon after this last quotation appeared, I took a trip out to Mr. Elijah Inman's place, where he keeps about 30 colonies of bees in box hives. About a dozen were examined, in some of which the bees had died during the winter, and as many that contained rousing live colonies, to see how the combs were attached; and it was found that they were attached at the top, and a considerable distance at the side, while at the upper corners of the hives, almost without exception, there remained a hole through each comb, an inch or more across. Mr. Inman has kept bees 20 years or more; and when I pointed out these apertures to him he said, "Why, the bees always leave those to go along."

One season I ran short of hives for the swarms, and about 20 were hived in hive-caps. The caps were 7-inch, and were set down on a board with a ⅜ strip under the edge, to provide an entrance. The inside measure of the caps was 7x14x28 inches, and the bees usually occupied one end and left the rest vacant.

WINTERING IN 7-INCH CAPS.

For winter they were taken up from the bottom-boards and set upon scantlings in the cellar, and I never knew bees to winter so well; and it was in the following May, in transferring, that I noticed the combs were not attached at the upper corners. Nearly all know that it retains heat far more to have the combs attached all along the top and upper corners than at the side; and unless the bees can be taught to modify their instincts this advantage can not be claimed.

On the contrary, it is really an advantage to have a space around the frames in winter, and we want a circulation of the kind mentioned, and the closed-end frames afford it in one of the best possible ways. The reason my bees wintered so well in the caps was because the air that circulated among the combs and around the cluster of bees took up moisture and impurity, and passed on into the vacant part, away from the bees. There must be a circulation of air in the hive. Put six inches of chaff over the colony out of doors in cold weather, and there will be a forced circulation of air upward through it. Put the same colony in the cellar and there will not be a circulation through it, but the moisture and impurity will pass from the cluster of bees just the same, and lodge in some part of the brood-chamber, to the destruction of the colony. We can provide a draft that is equivalent to that through the chaff by raising the honey-board a little at one edge. The amount of ventilation a colony needs depends upon the temperature of the outside air. The lower the temperature, the more chaff and less other ventilation.

VENTILATION WITH CLOSED-END FRAMES.

W. A. Boynton, on page 847, describes how frames and hives swell when subjected to different atmospheres. Propolis isn't soft and pliable in winter; so if a frame changes in the least there will come cracks between every one of the closed ends, so that air can get out slowly on all sides. I have known hundreds of combs to crack on account of a change of temperature, and sometimes they dropped entirely out of the frames, and that when they were not moved at all. Propolis breaks sooner than wax.

Dewitt Miller is a bee-keeper living near Bassett, Ia. I went to look at his bees in May, 1890. There were 34 colonies. I wanted to buy the strongest ones. Some racks of sections were left on all that winter, and he told me I might have my choice out of those not having sections on, for $5.00 each. Upon closer examination I found there were 15 which were very strong, and 19 very weak, and that every strong colony had sections on. The bees had not clustered in the sections—it was simply vacant space. In the weak colonies, enameled cloth was laid directly upon the brood-frames, and with the other colonies the enameled cloth was spread upon the top of the rack of sections. The drafts that did not circulate around the sides of the combs circulated into these racks of sections, and saved the bees by conducting away impurity and moisture. Mr. Miller's cellar is a rather warm one, and the bees could endure considerable ventilation; had it been colder they would have done as well with less ventilation—about as much as is furnished by the cracks and empty space that accompany the closed-end frames.

TESTING MOISTURE AND VENTILATION.

The reason most bee-keepers do not appreciate the effects of moisture and ventilation is because the wood of the hives runs in a horizontal direction. Take a ten-frame Langstroth hive, and nail the bottom and cover-boards on solid; then turn the hive up on one end and subject a colony in it to five months' confinement, where the temperature is below 40°, and the moisture will collect on the inside of this hive and split the sides open. I have had them split open so that the hive fell into two parts, and in February there were cracks, in the previously solid wood, ½ inch wide. Sometimes colonies would make a great fuss until the hive split open, when they would become quiet. At other times, when the hives were in the usual position, with tight cover-boards, the colonies became uneasy; and on raising the edge of the boards a little they became quiet, and wintered well.

CLOSED-END FRAMES ARE A REGULATOR.

The more the moisture accumulates in the closed-end frames, the more they swell and widen the cracks until there is just the right amount of ventilation; then when the ventilation is too much they dry out and approach their former state. Henry Alley said in the *Review*, that we can *winter* bees all right, but the difficulty is in *springing* them.

Now, I believe if bees are wintered properly they will take care of themselves through the spring; but with poor wintering, when the colonies come out weak and sickly, there is the difference which was evident in the wintering of Mr. Miller's bees. It is as much trouble to nurse up a sickly colony as a good colony is worth, and 50 well-wintered colonies are worth more than 100 which must be springed. It is no trouble to "breed up" well-wintered colonies. Closed-end frames regulate the ventilation without the aid, and probably without the knowledge, of the apiarist. C. W. DAYTON.

Clinton, Wis., Nov. 2.

[You have produced some good arguments for the closed-end frame, and we have been wondering whether you were using them or not. In one of your articles which appeared in the *American Bee Journal* we had concluded that you were opposed to the use of fixed frames of all kinds; but it seems you are an advocate of the closed ends. There is no denying the fact that they have many decided points of advantage over many others. If we could adapt them with any degree of satisfaction to an eight-frame L. hive, or to the hives already in use, we would use them in preference to all others; but so far the Hoffman seems to be the nearest approach we can make to them. They are partly closed-end, you know.

In reference to the box hive, it is quite likely you have touched upon one or two of the essential conditions for its good wintering. After all, of late years we have had no trouble in wintering in eight-frame or ten-frame L. hives, with open-end or loose frames, either in or out of doors. The last ten or twelve years our percentage of loss has not been above three per cent; but almost every spring we have a few weak ones to nurse up.

This topic is seasonable and timely; and instead of being all in a maze on the wintering question, light from a multitude of testimonies is surely coming, if, indeed, it is not already here. What we need to do now is to compare notes, and sift out the truth.] E. R.

WHERE TO KEEP HONEY.

GOOD ADVICE.

A correspondent writes that his "honey has all turned watery, apparently, as the comb looks transparent, and there are drops of water or thin sweet standing in many places on the combs." After thus saying he asks whether I can explain to the readers of GLEANINGS and himself what the trouble is. This question has been asked and answered so often it would almost seem that all should know the trouble, without any thing further being said on the subject; but as he is evidently trying to keep his honey late in the season, perhaps a few words on the subject may not be amiss, especially to those who, like him, wish to keep honey till into the winter.

Some seem to think that the cause of honey becoming watery is because the bees do not thoroughly ripen it before sealing it; but if they used a little more thought on the subject it would seem that they must see the fallacy of such an idea; for, whether ripened or not, the honey can only ooze from the cells after being capped, on account of a larger bulk of liquid being in the cell afterward than there was at the time the bees sealed the cell. This can come from only one source, which is always brought about by either cold damp weather or a non-circulation of air, or both. Honey swells only as it becomes damp; and the first that will be seen of that dampness will be in the unsealed cells where the honey will have become so thin that it will stand out beyond the cells, or, in other words, the cells will be heaping full. If the dampness remains, the sealed honey will soon become transparent, while the honey from the unsealed cells will commence to run out, daubing every thing below it; and eventually, if the cause is not removed, the capping of the cells will burst, and the whole will become a souring mass. In one or two instances I have seen honey left in such cold rooms, where the moisture was also very apparent, that it became so very thin that it ran down from the combs so it stood in puddles on the floor all around the bottom of the nice white cases in which it was stored. It was evident that this honey had once been of the very best quality, from the nice appearance of the cases; but the grocer had put it in the cellar when it arrived at his store, and there it had been left till it had thus become very nearly good for nothing.

When I first commenced to keep bees I stored my honey in a tight room on the north side of the house, where it usually remained from four to six weeks before crating for market. In crating this honey I always found the center and back side of the pile watery and transparent in appearance. As that which was stored first was always the worst, I thought it must be owing to that being the poorest or least ripened, until one year I chanced to place this early honey by itself in a warm, dry, airy room, when, to my surprise, I found, upon crating it, that this first honey had kept perfectly, while the later honey stored in the old room was as watery as ever. This gave me the clew to the whole matter; so, when I built my present honey-room I located it in the southwest corner of the building I call "my shop," and painted the south and west sides a dark color to absorb the heat of the midday and afternoon sun. On two sides of this room I fixed platforms for the honey, as has been illustrated in one of the back volumes of GLEANINGS. The sections were so piled on these platforms that the air could circulate all through the whole pile, even if it reached the top of the room. During the afternoons of August and September the temperature of the room would often be raised to nearly or quite 100 degrees, which would warm the pile of honey to nearly that degree of heat; and as this large body of honey once heated retained the same for some length of time, the temperature of the room would often be from 80 to 90° in the morning after a warm day, when it was as low as from 40 to 60° outside at 6 o'clock A. M. By this means the honey was being ripened each day, and that in the unsealed cells became thicker and thicker, when, by

September 15 or 20, or after being in the room from four to seven weeks, the sections could be tipped over, or handled in any way desired, without any honey running from even the unsealed cells that might happen to be around the outside of the section. By having the door and window open on hot windy days the air was caused to circulate freely through the pile, when I found that it took less time to thoroughly ripen the honey than it did where all was kept closed. In doing this, of course it is necessary to provide screens, so as to keep flies and bees out of the honey-room. If I wish to keep honey so late in the fall that the rays of the sun fail to keep the room sufficiently hot, or should I desire to keep it into the winter, or at any time when the temperature of the room falls below 70° while the honey is in the room, I build a fire in the room, or use an oil-stove to heat it up to the proper temperature of from 90 to 100°. In this way honey can be kept perfectly for an indefinite period, and can always be put upon the market in the very best condition.

Having once obtained our honey, it seems very foolish to me to neglect it so that it deteriorates to the condition of a second or third class article. We should all strive, not only to see how large a quantity we can produce, but also to have it of good quality, keep it looking well at all times, and put it upon the market in enticing shape. G. M. DOOLITTLE.

Borodino, N. Y., Nov. 4.

[Doolittle's advice is sound; and we especially commend the point he makes, that, after having secured a good crop, we do not want to spoil it all by a piece of ignorance or foolishness.]

TIME OF CELLARING BEES.

WRITING FROM HEARSAY EVIDENCE.

This year my bees were taken into the cellar Nov. 5 and 6. Practically, their confinement began some time the last of October, for they had not flown any since that time. The weather seemed pleasant enough for them to fly, but they appeared to have sense enough to know that there was nothing for them to do outside, and so stayed at home. If I had not been hindered by other things, I should have taken them in sooner. The question may be raised why I took them in so early, and why I would even take them into the cellar in October. Well, I'll tell you. I don't know what the weather will be, and it's likely to rain any day and turn off cold, and I don't like the idea of taking them in wet and frozen. I suspect it's harder on them than two or three weeks of longer confinement. In a milder climate, of course they would be brought in later.

If I knew the weather would continue all winter as it is now, they would not go into the cellar at all. But just because I don't know what weather may come any day, I can't take the risk to leave them out, even in mild fall weather. Why, sometimes the mercury runs away below zero in November. Even before they were taken in, it went down to 24° above. Now, *if* they could stay out two or three weeks later, and then have a good fly, it might be better; but I'm not sure of flying weather again before spring.

If they were in the cellar, and every night the temperature should go down to about freezing, as it does the last of October and first of November, we would talk about the danger-point; but we don't say any thing about it when they are out of doors, probably because we expect them to have a fly shortly. The cellar-doors are left open day and night, the temperature being about 45°, so that the bees are the same as outdoors, only they have more even and milder weather. I said my bees were all in. I should have said except a dozen that I want to try with the new winter cases.

DO BEES REASON?

The Query-box of the *A. B. J.* has been wrestling with this question, the replies varying from a blunt "no" to that which credits them with using more reason than some members of the human family. The repliers would doubtless have been more in accord in their replies if they had first had a full agreement as to what constitutes reason and instinct.

Any one who has carefully watched bees for some years can cite enough facts to make out a pretty strong case in favor of their using reason, or something very nearly akin to it, and he can also cite actions that clearly indicate an entire lack of any thing like reason. On another page of the same journal is an article copied from the *Phrenological Journal*, written by M. L. Holbrook, M. D., taking very positive ground that bees do reason. Without debating the correctness of his ground, I suspect that any one familiar with bees would not be very much strengthened in his belief in their reasoning powers by the arguments given. According to Dr. Holbrook, the reasoning power is shown in the fact that bees use the right kind of food to produce queens or workers; that the queen knows enough not to lay too many eggs, especially drone eggs; "that, when carried to countries where they find supplies of food all the year round, they cease to store it up;" that they pursue and sting one who robs them of their honey; that they have a knowledge of human nature, and know their friends from their enemies reasonably well; that they know how to build combs in new and difficult places, and that they station ventilators at the hive-entrance. Other facts the doctor says he might mention, but these seven he thinks sufficient for his purpose.

However good some of these arguments may be, so much of error is mixed up with them that the strength of the whole fabric is badly impaired. For instance, "In Australia, where food is abundant most of the year, in order to have honey it is necessary to import new queens that will produce workers which have not had experience in that country." "Why do bees pursue and sting one who robs them of their honey, if they do not know its value?" (As if they wouldn't sting one who brings them honey or does them any other favor!) "It has been stated on very good authority, that the Italian bees will sometimes attack in mass a man who has robbed their hive, days after the occurrence, as if to destroy him." (How thankful that so many of us have escaped through all these years!) In ventilating, "to be able to remain in their places, they seal their feet to the floor, otherwise they would fly away." *Seal* their feet! Why is it that, when people want to write about something of which they are ignorant, the poor bee is so often selected as the victim?

NUCLEI SWARMING OUT.

Complaint is made that nuclei in small hives swarm out. Years ago I used hives for nuclei by dividing up a ten-frame hive into six apartments, putting a full-sized frame in each apartment. The plan worked well, and I don't remember more than a single case of swarming out, and that was from exceeding heat. If I remember rightly, the nucleus had just been placed and had no queen. But the apartments being 2¼ inches wide, they were very roomy for a single frame, and there was some annoyance from bits of comb being built on the walls. A year or two ago I thought I would make a nucleus hive that would not be objectionable, and made the apartments 1¾ wide, hoping that this closer spacing would prevent building of fins on the side-walls, and thus make it easier to handle the combs. It was a success in that direction. The frames came out beautifully, but so did the nuclei, much too often. I can not say positively what made the difference, but I can only think of that half-inch narrower space. So I think I can recommend the old nucleus hives that I first made, as being on the whole quite satisfactory. C. C. MILLER.

Marengo, Ill., Nov. 8.

[Although your locality, doctor, is a good deal colder than ours, some things have turned up recently that make us wish that our bees were in the cellar. For the sake of experimental purposes we winter both in and out of doors, in permanent chaff hives, and in single-walled hives having winter cases. During our cool days, when the bees bunched up pretty close in the hives, we took occasion to examine the clusters of every colony of our over 200. Those in the large chaff hives and small Dovetailed chaff hives, and in the single-walled hives in outside-winter cases, had nice clusters, and the winter case colonies were in as nice condition as those in the large chaff hives. In the single-walled hives the clusters were drawn up tighter, and, what is more, there were small knots of bees that were left on the outside combs dead, the cluster having contracted so as to leave them, as it were, high and dry. It is evident, then, that the cool days on colonies without protection were detrimental, and that anywhere from 5 to 10 per cent of the bees had died prematurely in the unprotected hives, because they were left high and dry, as was explained. This argues strongly for protection, even during the months of October and November and up until the time the bees are put into the cellar. From this, if future observations shall substantiate it, we shall conclude that we shall do better to carry the colonies that are to be wintered indoors into the cellar early, or put on the outside winter cases temporarily, until the same are put into the cellar; or, what may be better for our locality, leave them with the winter cases on all winter outdoors.]

LADIES' CONVERSAZIONE.

BEE-STINGS FOR RHEUMATISM.

MRS. AXTELL SUGGESTS ALSO A KIND OF SURGERY AS A REMEDY.

For four years or more I had been troubled with rheumatism in early spring. Sometimes it would begin in the fall, and bother me all winter, more or less. Sometimes it laid me up so I could not work, so severe was the pain in my right hip-joint. Often the pain was so severe I could scarcely keep from screaming if I happened to twist the limb out of its accustomed positions. I did not have faith or nerve enough in the sting cure to go to the cellar for bees to sting me. I sent to John Linden, of Cleveland, O., and procured his "little black doctor," the little instrument that holds thirty golden-pointed needles, and the oleum, or irritating oil, and book of instructions called the "Exanthematic treatment." I inserted the golden needles by a spring that jerked them into the flesh so quickly they hurt but a trifle; then I covered all with the oil and a heavy coating of cotton batting. The above helped me more than any thing the physician could prescribe; in fact, he said I could not use any thing better. The price of instrument and medicine was but $6.00.

That was about five years ago. I was almost wholly relieved for the five years, except a slight lameness occasionally, caused by working on the damp cold ground early in the spring or late in the fall, that yielded readily to a little kerosene on a heavy woolen cloth, and laid on.

This winter, again, I had a very severe attack caused by riding out without sufficient wrappings. On coming home and getting warm, rheumatism took me in my left shoulder. It was a very severe pain. I could hardly get a breath without feeling as if a knife were piercing my shoulder. Again I used that needling process, and was wholly relieved in ten minutes. The application was so powerful that the veins looked swollen in my hand; and great heat ran through the arm, but the pain was gone. This was before time to work with the bees much in the spring; but as warm weather advanced I had plenty of opportunity to prove that bee-stings would not prevent rheumatism, as that same arm seemed to carry, after a few weeks, a continual dull pain which increased from time to time. I consulted three different physicians, and they all pronounced it rheumatism and neuralgia. I used the little needling instrument, but it did not relieve me as before, and I began to fear I should lose the use of my arm, as I could scarcely bear the pain at night, and in the day time I carried it much of the time in a sling.

I went to my physician and told him that I believed what ailed my arm was inaction of the liver, and indigestion. He questioned me, and said he thought so too, and prepared medicine to arouse the liver, which helped me wonderfully. Then peaches and grapes ripened, and he wished me to use them very freely, which has almost wholly relieved me.

I write the above as so many of our bee-keeping friends from time to time write of having rheumatism that I believe many who are troubled in that way might find relief, not in applying remedies to the arm, but in arousing the liver, and using peaches and grapes very freely —not only a sauce-dishful at meals, but eat freely of them just before meal time, both cooked and uncooked. Probably not every one would be thus benefited, but I am sure many would be. The peaches and grapes are a cheap medicine, even if we had to buy them canned. I think they did me the most good when eaten ripe, without sugar or cream, and uncooked.

I haven't much faith in the sting cure for rheumatism, either to prevent it or cure it. Possibly it might cure some kinds of rheumatism. Doctor called mine bilious rheumatism when he saw what helped me.

Mr. Axtell has had several very severe attacks of rheumatism in years past, which have readily yielded to that exanthematic treatment, or needling process, which our home physician greatly recommends for many kinds of rheumatism.

I believe one should not neglect pain, but in some way change the mode of living, or apply an irritating plaster or the exanthematic treatment before the disease becomes settled. Kerosene, poured upon a cloth, and the cloth laid upon a hot stove until as hot as can be borne, and bound on, will often drive rheumatism away, and it is also good in threatening pneumonia or pleurisy; but, better than all, is not to needlessly expose one's self to cold or damp weather, as an ounce of prevention is better than a pound of cure. MRS. L. C. AXTELL.

Roseville, Ill., Nov. 1.

[My good friend, I should call your remedy, in one sense, a surgical treatment; and, by the way, I forgot to notice, in our last issue, that surgeons are enumerated in the list when our friend said that the world would be better off without doctors. Surgery very often gives relief as surely as the wagonmaker mends a broken wheel. And this reminds me that somebody has invented a machine to cure bee-stings by means of hypodermic injections. I suppose the philosophy of your remedy is, that the needles puncture holes so the medicine can reach the point where the disease is located; and I am very glad to know that your family physician indorses and recommends the remedy. I am very glad, also, for the suggestion that plenty of good ripe fruit will often of itself take the place of medicine. This, you know, supports and indorses Terry's suggestion of strawberries taking the place of medicine; and because he recommended it, a whole quart at a meal, the great public came down on him almost fiercely. Why, whenever I feel a little out of sorts I go and try a real hearty meal of fruit, almost the first thing; and I am so much in the habit of finding relief, as you do, that I can heartily indorse all you have said.]

A. I. R.

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

QUESTION 196. *Some think it better, in order to have bees winter well, to raise no young bees after August, while others think it better to encourage the queen to lay as late as possible. What do you think about it?*

I want bees raised late in autumn.

Illinois. N. W. C. MRS. L. HARRISON.

We prefer to have our colonies strong for winter.

Illinois. N. W. DADANT & SON.

I think it best to have them breed as late as they will.

California. S. R. WILKIN.

I think we better leave it to the bees. They are wise in such matters.

Michigan. C. A. J. COOK.

I think I should prefer the young bees, provided they hatch some little time before really cold weather comes.

Illinois. N. C. J. A. GREEN.

I have had the very best success with young bees for wintering, notwithstanding the many plausible theories in regard to the matter.

Ohio. N. W. H. R. BOARDMAN.

I like them raised as late as possible, but not so late but they can have plenty of outdoor exercise before going into winter quarters. I have had some experience in that line.

Ohio. N. W. A. B. MASON.

I think it best to let the bees do as they please in the matter; i. e., sufficient is not gained to pay the apiarist for trying to make them do other than what their own inclination prompts them to do.

New York. C. G. M. DOOLITTLE.

I have had them winter well when brood-rearing ceased early in the season, and also when it extended late in autumn. I have lost heavily under both above conditions, but prefer to take my chances when we have a late crop of honey, if it is all gathered from flowers.

Wisconsin. S. W. S. I. FREEBORN.

I think queens usually know their business by instinct better than the bee-keeper by reasoning. When bees are wearing out fast, or becoming aged, by gathering honey, it seems to be a provision of nature that others should be reared to take their places. I have observed no unpleasant results from young bees in the fall.

New York. C. P. H. ELWOOD.

I think I'd rather have no *very* young nor very old bees. If we knew just what bees are to die in the hive in the winter, might it not be best to kill them in the fall, and save the honey they would eat, as well as the feelings of their mourning sisters? Or was that Hosmer's theory?

Illinois. N. C. C. MILLER.

So many printed it, that I once supposed it was a fact that young bees wintered better than old ones. Experiment on a large scale, and many times repeated, proves to me that it is not so. Old bees are less apt to have diarrhea for physiological reasons which you have all observed, and some of you understood, no doubt. I do not care to have my queens lay eggs at all after the last of August.

Michigan. S. W. JAMES HEDDON.

I don't see as it makes any difference. I have had 8 swarms winter well with very old bees. The only advantage with young bees will perhaps be visible in the spring. If the weather is unfavorable, like the present, the old bees might drop out quicker. As to wintering from November until the 1st of April, it isn't much of a trick to do that successfully; but from April 1st to June 1st is where my losses come in.

New York. E. RAMBLER.

Before melilot was growing so bountifully around Cincinnati as it does now, which keeps our bees breeding late in the fall, bees would cease breeding in July, and I found often not a sign of brood in August. in some of my hives. In September they would commence again to breed; and in some hives there could be found five or six sheets of brood at the beginning of October. My bees wintered just as safe then as they do now.

Ohio. S. W. C. F. MUTH.

We never try to control the bees about breeding late. They do as they please, and I think they will manage that part of the business safer than I can. In fact, we seldom see our out-apiaries from the last of July until the first of November, when we prepare them for winter, and all we have seen of the out-apiaries this spring so far (May 10) was one visit in April, to count them and just look into five or six in each yard, to see whether there was enough honey.

Wisconsin. S. W. E. FRANCE.

My experience teaches me that bees hatched the latter part of August and during September are better to winter than bees hatched the last of October or in November. Very young bees are not as hardy as those of middle age. Bees too old or too young are not desirable for wintering. If our bees could have occasional flights in winter the young bees might winter well; but when they are confined to the hive from November to April they are not as good. So says my experience.

Vermont. N. W. A. E. MANUM.

Both are wrong. Let the bees settle that matter themselves, and they will settle it right. Here we sometimes have swarming in September—how shall we stop their breeding in August? Very likely if you persistently tinker a colony into an unnatural condition, so that most of the population are young bees that have never flown, while the old bees are mostly worn out and gone, the result will be bad; but no danger need be feared from young bees naturally raised in September and October.

Ohio. N. W. E. E. HASTY.

[We are surprised to know how many of the respondents above favor late breeding, when it comes about naturally on the part of the bees. We have had excellent results in winter with only *old* bees to go into winter quarters. The year that we wintered so well nearly 200 colonies was just following the season when we were having such ravages of foul brood. At least half of the colonies had had their brood destroyed in order to cure the disease, the bees, of course, having been put into clean hives on frames of foundation. All these were old bees, and yet, so far as we could discover, they wintered just as well as those that didn't have foul brood, and among which brood-rearing continued clear up into October, in some cases. Taking it all in all, we rather prefer to have a lot of young bees go into winter quarters—not the real young fuzzy kind, but those that are sufficiently mature to wear off the downy appearance, and to perform the labors of the hive.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE LEACH SECTION-FORMER AND FOUNDATION-FASTENER COMBINED.

Friend Root:—Since receiving GLEANINGS, Oct. 15, and reading your note on the combined section and foundation fastener, I have received one of the machines direct from Mr. Leach, with the improved pressure, and I felt anxious to test it at once. I have done so; and I must say, in justice to the machine, I have thoroughly tested it on sections very difficult to close, and find it works with perfect ease on any section, as the pressure is sufficient to even break them. This machine works easily without a hitch or jerk, and it would be hard to imagine any thing more complete to work, either by hand or foot power. I consider it a most valuable device in the saving of time, wax, and labor. I understand from Mr. Leach that he is now arranging to have the whole machine constructed of iron, so as to have all parts perfect, and to weigh only about 8 lbs. If so, it can not fail to give perfect satisfaction. When you receive one of the improved machines you will indorse what I have stated here. R. E. SMITH.

Tilbury Center, Ont., Can., Oct. 22.

[We are very glad to get this report, as the machine will be indeed a great labor-saver if successful. We shall be pleased to report on the merits of the new machine when it is perfected and received.]

COLORADO, AND ITS IMPORTANCE AS A HONEY STATE.

Friend Root:—As winter is fast approaching, and the bees have all gone into their homes, I will now try to give some reports. There will be, as nearly as I can find out, about 2000 colonies of bees put up to winter in Larimer and Weld Co's, Col., and I have learned from reliable sources that the yield has been reckoned at from 50,000 to 55,000 lbs. I also send a report of the shipment of honey, as reported in *The Greeley Tribune* of Oct. 14. It reads as follows:

A carload of honey, weighing 30,000 lbs., was shipped from this city Monday to Hamblin & Bearss, of Kansas City. This vast amount of sweetness was purchased in Weld and Larimer Counties, and represented about $3000.

Greeley, Col., Oct. 26. THEO. V. JESSUP.

HOTEL RATES AT ALBANY.

Inclosed I send you names of hotels for the accommodation of those attending the N. A. B. K. A. to be held in Agricultural Hall, Albany, N. Y.:

Globe Hotel, $2.00 per day.
American Hotel, $2.00 per day.
Cox Brothers, No. 4 Williams St., $1.00 per day (temperance house).
W. H. Keeler, 488 Broadway, European plan. Rooms, 50, 75 cents, $1.00.
Kimball House, 69 Washington St., $1.00.
Merchants' Hotel, 497 Broadway, $2.00.
I. Keeler, Restaurant, 56 State St.
Odel Restaurant, 94 State St.

THOS. PIERCE, Committee.

Gansevoort, N. Y., Oct. 31.

CLEOMELLA ANGUSTIFOLIA.

I have a pretty plant from W. Z. Frazier, Carrizo Springs, Texas, that interests me. Mr. F. says this is a very valuable bee-plant. It blooms in May and continues till frost. The bees, he states, are wild after it. He adds that they have had a very dry year, so that all other plants have failed to produce honey; but this has done admirably well. He thinks it does best in a drouth. He thinks that, but for this plant, the bees would have starved. This pretty plant is *Cleomella angustifolia.* We see that the very name is suggestive. Cleome and mella make us think of Rocky Mountain bee-plant and honey at same breath. This plant belongs to the same small family that contains spider-plant and *Cleome integrifolia*, or Rocky Mountain bee-plant; caper family; *capparidaceæ*. The name, the family, the fact that it gives a good honey crop when all else fails, and that it seems to do best in a drouth, are all points of interest. Will it grow north? Will it hold its own? Will it bloom so long? Will it yield nectar in any and every season? We have arranged to try it here at the station.

Ag'l College, Mich., Oct. 14. A. J. COOK.

PUTTING CANDY IN THE WRONG END OF THE BENTON CAGE; THE PROPER WAY TO PUT BEES IN THE CAGE.

I have received two queens from different parties in the Benton cage, and the candy was in the opposite end from the hole with the cork, and I had to lift the wire and put candy in that end to introduce by your plan. Should not the shipper put the candy in that end? if not, what is the use of the directions as they are?

Stark, Mich. BENJ. PASSAGE.

[Most assuredly the candy should be in the cork end of the cage. That end is paraffined, as explained in GLEANINGS, to prevent the candy from hardening. The directions on the cover specify which end the candy is to be. The parties mentioned probably did not know how to get bees in the cage except through the small hole through which the bees eat out the candy. We always tack the wire cloth down except over the end hole opposite from the candy end. To put the bees in we simply turn the wire cloth over in such a way that the fold covers half of the hole. The thumb then acts as a stopper while putting in the bees and queen. When all are in, the wire cloth is folded back and tacked. It is a little awkward at first, but is very easily done after a few trials. Please tell us who the parties are that made the mistake, and we will send them a marked copy of this.]

SECTION BOX; SIZE OF NUCLEUS HIVES AND FRAMES.

During the early part of the season I started a nucleus stock by means of sections instead of using frames, and I was surprised to find how well this method worked. In a few weeks the empty comb that I used was one mass of brood all over; and on placing a second tier of sections on these they were worked as quickly as those below. I took this idea of using sections from Rambler, but I have since used a frame of such dimensions that two will just fit inside a Simplicity frame. Having put foundation starters into these small frames I place them in the brood-nest of a strong colony, and, on their becoming full of capped brood, I take the small frames out of the large one, with plenty of bees with them, and put them into a Simplicity hive, between division-boards. I prefer placing four of these small frames of brood side by side, $1\frac{3}{20}$ from center to center, and support them on T strips placed crosswise, covering the frames with a quilt or board, leaving space between the frames and the board. In course of time I add a second tier of frames; and when these are fully capped over I return the whole set of frames to Simplicity frames, adding full-sized frames of brood to bring the colony up to full strength.

We are not well situated for bringing forward nuclei, on account of the cold nights, and the fact that we are 400 feet above sea-level; but still I have noticed the same difficulty in regard to using full-sized frames in other places. A two-frame nucleus seldom does well by itself. No doubt a cubical chamber of the same capacity as the two-frame space would give the best results; but from actual experiment I find that the contracted frame, as described above, increases the working capacity of the swarm in a marked degree. J. T. SIBREE.

Nashville, Or., Aug. 19.

TRANSFERRING; FULL VS. NARROW SHEETS OF FOUNDATION FOR WIRED FRAMES; QUESTIONS BY A BEGINNER.

I have, after reading GLEANINGS, decided to transfer my bees, which are in frames 9½ x 11, to the L. frame. Having them wired, as I understand that the combs in L. frames require wiring to prevent them from sagging, I should be glad to have you instruct me how to transfer them to the wired frames.

Can I use half or third sheets of comb foundation on wired frames? Will bees build combs down when whole sheets are not used?

Chelsea, Mich., Oct. 31 B. PARKER.

[To transfer, use any of the methods recommended in the standard bee-books; in a word, cut the comb out from your old frames, and size one or more pieces so they will fit in an L. frame. Set the latter over until the wires lie on the comb; with a knife draw a gash along the line of each wire, to the septum of the comb. Press the frame down, and crowd the wires into the gashes made in the comb. Wind a string around a couple of times; tie, and hang the frame in the hive. If you do not get around to take the strings off, the bees will. They will very quickly heal up, as it were, the gashes made along the line of the wire, though they do in some cases, particularly when they have nothing else to do, eat around the wire. You can use narrow sheets, but we would recommend wide full sheets of foundation. The bees will make full combs off from narrow starters of foundation, but there may be some of it drone comb.]

SMALL BEE-SPACE AND THICK TOP-FRAMES AS A PREVENTIVE OF BURR-COMBS.

There has been much discussion of late in reference to burr-combs. Some very good suggestions have been made, and numerous theories advanced, explaining the cause of their being built, as well as offering a means whereby we may overcome them, or at least reduce them to a minimum. Our experience has proved clearly to our minds, that, by using a top-bar ⅞ inch thick, and allowing not more than ¼ inch between the top of brood-frames and the bottom of super, we have not been bothered much with burr-combs. We come to this conclusion from actual observation, where we had ⅜ inch between the frames and super; we had a good supply of burr-combs, and by reducing the space we found that burr-combs had become almost a thing of the past.

Another feather in regard to burr-combs, which is of very great importance, is, never place a brood-frame in the hive without being sure that the top is perfectly clean. This will tend, to a great extent, to lessen their formation.—*The Bee Journal*, Winona, Wis.

THAT FIRST BEE-ESCAPE.

As there is some controversy of late as to who is the inventor of the "bee-escape," I hope none of these claimants will get too hot if I put in my say, always recollecting the best stories are told last. I am not going to claim the premium myself, but—not long since an old German came into our office, and, on seeing a Porter bee-escape, when told its use he said: "Mine uncle in der fadder land, more as forty year ago, make him bee-escape mit stick like elder und hog-brussels. He take stick so long" (about three inches as he measured off), "clean him middle out, then make him pointed like pencil, then tie him round mit hog-brussel, then stick other end in hole in hive. De bees come out between de hairs and could no go back again."

In explanation of its use he said that some people killed their bees to get the honey; but by using this they could nearly all be gotten out into a box or other hive; then by care to get the "king" bee he could still have a hive of bees.

Here, gentlemen, is, I think, a claim prior to any of yours, patented in the "sixties," and you may be compelled to yield the honor to "Der fadder land."—*Nebraska Bee-keeper*.

HOW SOLDIERS WERE POISONED BY EATING HONEY TWENTY-THREE CENTURIES AGO.

I append here a little account of an occurrence that happened Feb. 3—6, 400 B.C., in Asia Minor, some 20 miles south of Trebizond, on the Black Sea. While the translation may not be exactly as scholarly as some might prefer, yet it is for the story I send it. It is from Xenophon's Anabasis, Book IV., Chap. VIII., 19—21.

Atlantic, Iowa, Nov. 3. W. C. FRAZIER.

"Having passed the summit, the Greeks encamped in a number of villages containing an abundance of provision. As to other things here, there was nothing at which they were surprised; but the number of bee-hives was extraordinary, and all the soldiers that ate of the combs lost their reason, vomited, and were much purged, and none of them were able to stand perpendicular. Such as had eaten a little were like men greatly intoxicated, and such as had eaten much were like insane men, and some like persons dying. They lay upon the ground in consequence in great numbers, as if there had been a defeat, and there was great dejection. The next day no one was found dead, and they recovered their reason about the same hour that they had lost it on the preceding day, and on the third and fourth days they rose up as if they had taken physic."

[We have had this account before; but as it is of more than general interest, occurring so many centuries ago, we are glad to give place to it.]

ARE THE QUEENS FROM FOUL-BROODY STOCKS DISEASED?

I have always been under the impression that the foul-brood bacilli were to be, and have been, found in the reproductive organs, etc., of some queens taken from diseased stocks; but the following from a letter of Dr. Lortet's, in the May number of the *Revue Internationale*, shows me that this is not his opinion:

> During the latter months of the past year and this spring I have received from some of your courteous subscribers six queens taken from undoubtedly foul-broody hives. I have been able, on these females, to verifiy that which I have already stated before; viz., that the eggs are healthy; neither the ovaries nor ovules contain bacilli. I believe, then, to be able to state once more that foul brood is not transmitted by inheritance, but only by direct contact with the infected animal, or by injecting nutritive substances containing foul-brood bacteria.—*Dr. Lortet.*

I think your opinion on the above, which is of so much importance in the treatment of foul brood, would be of interest to bee-keepers.—*T. D. Schofield, Alderly Edge.*

The editors of the *British Bee Journal* reply:

> The quotation our correspondent gives has not escaped our observation, but we have not thought it necessary to notice it, because we do not think it is conclusive that queens do not sometimes become diseased. It only shows that the six queens examined by Dr. Lortet were healthy. Although it is believed that queens may be diseased, it by no means follows that *every* queen is so. Hilbert found, out of twenty-five queens, only three diseased. He also found that such queens given to healthy stocks produced the disease in these stocks, and that it was very difficult and almost impossible to cure the disease while such queens were present. Just as every bee does not become diseased in a foul-broody hive, and as every human being does not contract cholera although exposed to its influence, so, we take it, there is immunity from the disease with some queens. Strictly speaking, we can not say that every queen of a foul-broody hive is necessarily diseased, nor can we say that every queen is exempt from the disease. The great hope of stamping out foul brood exists in the fact that it is not hereditary, and, in cases where foul brood is difficult to cure, the queen may reasonably be suspected to be diseased, and should be destroyed, as it is hopeless to effect a perfect cure while such a queen is present.—*British Bee Journal.*

[Of the 75 or 80 cases of foul brood that we had in our apiary some three or four years ago, nearly all of which were treated on the starvation plan, and in all which the queen was retained the disease never reappeared, where we had observed due caution, putting the bees into clean hives, on frames of foundation. On about a dozen, for the sake of experiment we put the bees back into old hives, on frames of foundation, but did not scald them. In all of these the disease reappeared, showing that the spores of foul brood must have resided in the old hive, and hence the reappearance of the dreaded malady. Now, the singular point here is, that, in all of these foul-brood cases, where treated right, not one of the queens had the disease, or, at least, her colony long after treatment was perfectly healthy. In the United States we would conclude that, if the fatal germs were ever present in the ovary of the queen, the cases where this may occur are very rare indeed.]

BIG MODEL OF A HONEY-BEE.

The model of a honey-bee, measuring 4½ feet from head to sting, and 6 feet across the wings, has been received from Paris by the Biological Department of the University of Pennsylvania. It is intended for the instruction of the students. The insect is perfectly articulated, and the wings, head, thorax, and abdomen can be taken apart with the fingers. Moreover, the head may be opened so as to display the brain within. Every organ, artery, sinew, and tissue has been delicately reproduced, and the bee is to be dissected at lectures, by Prof. Charles S. Dolley, for the information of the students. Emile Deyrolle is the maker of this singular model.—*American Bee Journal.*

HOW CAN WE DOUBLE THE NUMBER OF STOCKS IN 60 DAYS IN EARLY SPRING AND SUMMER?

I have 45 hives of bees, mostly in Root Simplicity hives, and I want to double that number at the beginning of the honey season next year, which usually commences about the 10th of May, and our bees commence to raise brood largely about 60 days before that time, and I have brood-combs for only what bees I have. Now, would it be cheaper for me to buy bees at about four dollars per colony, or divide and use full frames of foundation, and feed sugar syrup, to have it drawn out and stimulate breeding by the time the surplus season commences? Is 60 days too short a time to double both bees and combs in, and have them very strong? I run them mostly for extracted honey.

Smithfield, Texas, Oct. 30. A. C. Brown.

[If you lived in a northern locality we should say that you could not make double the increase; but as you live in Texas we can not say what you might do. Much depends upon pollen sources, and what weather you had during the 60 days. Having good weather, plenty of natural pollen, and a little honey coming in, it might be possible for you to double the number of your stocks by spreading the brood, providing you had good queens. We would suggest that a better policy would be to increase the strength of the individual colonies as much as you can without increasing the number. A rousing big colony will do far better than a couple having just half the strength. The problem that bee-keepers should try to solve is, not to see what they can do with a *large* number of colonies, but to see what they can accomplish with as *small* a number as possible of rousing heavy ones.] E. R.

TOBACCO SMOKE FOR INTRODUCING.

How do you load your smoker with tobacco, for smoking bees to prevent the recently introduced queen from being balled?

Osage, Ill., Oct. 13. C. M. Thornton.

[We have on hand tobacco dust that we use for killing lice on plants. We put about a handful of this dust into a Clark, along with the other fuel; light, and we are ready for smoking. After all the queens are caged in the hives we go around toward night and blow about a dozen good whiffs of smoke in at each entrance. Don't do this during the middle of the day or you will be likely to start robbing, for the smoked bees are temporarily drugged.]

THE LOS ANGELES CONVENTION, JAN. 6 AND 7.

Friend Root:—Since reading Prof. Cook's and A. I. Root's program for this State, in Gleanings for Oct. 15, I have conversed with quite a number of the bee-keepers of this section in regard to your coming, and the prospective convention referred to. The interest manifested is very great, so I can assure you both a royal reception by the bee-keepers of this whole section. It has been my good fortune to have heard Prof. Cook at Indianapolis, and to have met A. I. Root at the N. A. B. K. A. meeting at the same place in October, 1886.

As referred to in my letter of last week, the S. C. B. K. A. will meet Jan. 20, and I know every member of it is doubly anxious to meet A. I. Root and Prof. Cook; so, in conversing with the members, they have suggested a change of date for our meeting, to Jan. 6 and 7. I will consult our president, Mr. Abbott, in regard to this, and will inform you as to the result as soon as possible. Mr. J. F. McIntyre writes: "Why not take advantage of Prof. Cook's and A. I. Root's presence, and organize a State association in honor of them?"

You are not trespassing at all, Bro. Root, in your suggestions, as I consider it an honor to aid in the least in presenting such men as yourself and Prof. Cook to the bee-keepers of California. I will see to securing a hall immediately.
Geo. W. Brodbeck.
Los Angeles, Cal., Nov. 5.

SHIPPING COMB HONEY IN CRATES; J. T. RIPLEY'S RULING ALL RIGHT AS IT IS.

Friend Root:—After reading what you say on page 865 about crating comb honey, I can't help feeling that the shippers and not the ruling are to blame. As for myself, I am grateful to Mr. Ripley for making that ruling, for I think it is the *only safe way* to ship comb honey, *provided* it is done right. In former years, whenever I shipped comb honey I always had more or less complaint of the glass being broken and the honey spoiled. This year I shipped nearly 3000 lbs., putting eighteen 12-lb. cases into a crate similar to the one you described in Gleanings, hauled it nine miles to the railroad over very rough roads, such as we have in Vernon Co., Wis. It was reshipped once in Madison, and arrived at destination, as one of the commission men wrote me, with every box safe and sound. The crates were made to hold three tiers of six boxes each, and the boxes fitted it very snug. I did not put in any hay and straw at the bottom, as you recommended, as there was no room for it. Each crate had four handles nailed to the corners for handling, the handles projecting about four inches. We found that the crates were heavy enough to require two men to carry them, and on that account they had to use more care. The handles were useful for the further purpose of preventing the railroad men from rolling them over, as they would be apt to do without them. It may be that, where honey was injured, as J. T. Fish says, the glass fronts had been covered by a thin piece of board without crating. I had thought of doing that myself when I read about Mr. Ripley's ruling; but Gleanings came afterward, and gave me the better way of crating.
Milford, Wis., Nov. 9. Gustave Gross.

A BIG REPORT FROM THE ALFALFA FIELDS.

About two and a half years ago I wrote to Gleanings about the alfalfa fields of Southwest Kansas, and stated I thought bees would do well here. As a result of that letter, a Mr. Howard, of Illinois, and Mr. Colton, of Iowa, each brought bees to Garden City in the spring of 1890, to test their work on alfalfa. I herewith report the result of their experiment:

They each have from 50 to 60 stands of bees. They average 90 lbs. of comb honey to the stand, and two swarms of bees per stand. Some hives have made as high as 180 lbs. of comb honey during the season. We no longer consider this as an experiment, as this is the second season they have done this. Bees begin work on wild flowers and fruit-bloom about April 1st to 10th. Alfalfa is ready for them about May 10th, and continues in bloom until Oct. 15th to Nov. 1st. Many farmers are just now cutting their last crop of alfalfa, and the weather is like summer. Bees sell readily for $10 per stand. Our bee-men can not supply the demand. Extracted honey sells here at wholesale from 12½ to 15 cts. per pound, and comb honey from 20 to 25. These gentlemen have given their lives to bees, and say this is the best bee-country they ever saw, and say they can handle 100 stands of bees here as easily as they could care for 50 stands in Iowa or Illinois. I herewith send a clipping from a report made of the bees here:

> The new enterprise of raising bees and saving honey has proved a most remarkable success here at this time, the close of the second season. One hive has produced not less than 180 lbs. of comb honey and two swarms of bees, which latter pay all the expense, leaving the honey clear profit at 20 cents a pound, or $36. The average yield has been 90 lbs., and the increase two swarms. The little honey and money makers have gathered all this from the thousands of acres of alfalfa meadow around here, and they could easily have gathered one hundred times more if the bees had been here to pick it up. This alone offers an illimitable opening for a big fortune to the painstaking man or woman who chooses this pursuit for a living in this vicinity.

There is surely a fine opening here for practical bee-men. There are thousands and tens of thousands of acres of alfalfa bloom that go to waste for want of bees to gather the honey; and to any person desiring to enter this field we should be glad to give all the information and aid we can.
A. C. McKeever.
Garden City, Kan., Nov. 5.

AN AVERAGE OF 100 LBS.

Our honey season is past and gone. My bees averaged 100 lbs. of comb honey to the colony. They made a very good honey, and a majority of what they did make came from black-jack acorns. Some insect would puncture the acorn, and during the night a honey-like substance wood ooze out, and the bees, by daylight, would come in loaded down and fall down all around the entrance to their hives with the honey.
J. D. Whittenburg.
Marshfield, Mo., Nov. 5.

DOCTORING WITHOUT MEDICINE.

If you wish help for the small intestine, try kneading the bowels. Dr. Kellogg says this will aid digestion by increasing the digestive juices and muscular action. Count 400 or more strokes each 24 hours. If it is too much trouble, go to the Battle Creek Sanitarium. There a machine will do the work for you. Counter-irritants are excellent for internal pains or aches.
Miss Libbie Williams.
Delavan, Wis., Oct. 3.

A LETTER FROM LUTHER W. GRAY.

I am sorry I am still unable to settle with my creditors. My health is still improving, but it is not yet advisable for me to go to work. I hope, however, to wipe out some of this disagreeableness next spring and summer.
Zanesville, O., Oct. 22. L. W. Gray

OUR HOMES AND MY NEIGHBORS.

If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you.—JOHN 15:7.

Although I profess to be a Christian, and to believe in the Bible, the text I have chosen to talk about to-day, the one just above, is one that has troubled me more or less all the years of my Christian life. Now, you may think it is a little singular when I tell you that, although it has troubled me, it has, at the same time, been a joy and comfort to me. It has troubled me, because I do not exactly understand how the promise can be fulfilled. Notwithstanding this, I believe it is *true;* and every year I live I see more and more verifications of its complete truth. You may remember that the same promise, or very similar promises, occur many times in the Bible. In fact, we find the same promise a little further along in the same chapter; nay, more: "Whatsoever ye shall ask my Father in my name, he may give it you." When I am called upon to read portions of the Bible containing these promises, especially if skeptics are present, there has always been a temptation to skip them; for I fear they may ask me to explain them, and I could not do it. Of course, I can explain them somewhat; but if an unbeliever should press me closely, he would get me into a tight place. To my great surprise, however, no one with whom I have ever talked has asked me to explain such promises, nor have they even alluded to them. All that Robert Ingersoll has ever directed against the Bible, it seems to me, is lame and trifling compared with what almost any professing Christian might point to in the Bible if he should choose.

Of course, I am aware of the light that commentators and theologians have given us in making the words plainer. Foremost is the condition of the promise. If we *abide* in Christ Jesus, and his words abide in us, are the conditions made in the outset; and who is there who has fully complied with these conditions? Müller has, perhaps, come as near to it as any one; and God has honored him by giving him tenfold—nay, we might say a hundred or a thousand fold, more than he ever expected or dreamed of when he began praying his prayers of faith. When Müller was converted he was straightway filled with intense longing to do something for the orphans and outcasts of the great city of London. He wanted money to purchase food for their bodies. But this was really only a secondary thought with him. His very soul *burned* with a desire to bring these poor children to Jesus; therefore he was unconsciously fulfilling the conditions in the fore part of our text; therefore he had faith to ask; and the whole world is standing in astonishment at what God has done for and through him. He did not ask rich men, nor did he ask *anybody* for what he wanted. He asked *God* only, and the money came. After the work was well under way, and people could see the fruit of it, it is not so very strange that the money was forthcoming from the pockets of both believers and unbelievers. But it seems next to a miracle that he received sums of money for this work at its *outset*, even before he had lifted a finger to the work, in simple answer to prayer. The whole point of the promise seems to rest on the condition or state of heart of the one who prays or asks. You may say, "Where, then, is the trouble with the little text?" I want to say, first, that I am very sure there *is* no trouble with the text. The real *trouble* is not with the text, but with us poor doubting mortals. We get in a hurry to see the answers come; and then many good people are praying for things that seem right and proper, and yet God does not see fit to answer them—I mean, from a human point of view. There are widows in our land who are straining every nerve, and perhaps suffering for food for themselves and their little ones—widows who seem devout and really faithful servants of Christ, and yet they are obliged to suffer. Yes, and there are children who pray in faith believing; and yet, according to human sight and perception, their prayers do not seem to be answered. But while I say it, a glimpse of light comes in here after all. The children that have for years prayed and suffered have many times become great and good men and women; and may it not be that in this way the prayer was answered? God knew what was best for them, and answered their prayers—yes, really answered by withholding that for which they asked, and giving them something better, may be years after. We are told that, in foreign lands, people are now starving on account of the scarcity of food. Of course, this very scarcity of food brings us better prices for our products; and even though they suffer, their suffering, in an indirect way, or, perhaps, I should say, the very thing that *causes* their suffering, brings prosperity to us. Now, many of these people are doubtless living, to the best of their ability, up to the light they have. Why does God let them starve and die if this be true? Well, most of us have learned that God permits many things to get very wrong indeed unless we, his children, set to work to right them. The world can not be brought to the light of Christianity unless we spring forward and help to do it. We must work as well as pray. As we grow older we find that God has honored us by placing the responsibility upon *our* shoulders, of disseminating Christianity and civilization.

Now, you may think my mind runs in a rather singular channel when I tell you what I have in mind. When my faith is brightest, and when I have been praying for the influences of the Holy Spirit most earnestly, this little text looks to me like a great unexplored region. You remember with what wonderful faith and persistence Columbus urged the reason of his belief that there was another world across the great seas. He saw away into the future, and, with almost a prophetic eye, rose above the rest of the civilized world about him. Even when everybody else was discouraged and gave up, he stood alone undaunted, and pushed on; and what a reward was his! His hopes were realized and his prayers were answered. God gave him a glimpse of a new world, no doubt brighter and grander than he in his highest enthusiasm had ever dreamed of. And, dear friends, I am firmly convinced that a new world lies before us, just as great and wonderful, and that it is to be found through this little text, and other like wonderful promises in God's holy word. But I was moved to write on this subject by an incident of a few weeks ago. Ours is not a peach region around here. Very few nice peaches are raised in this section of country, therefore they have to come to us, when we have them, from a distance, say from the lake shore, perhaps forty or fifty miles away. A few weeks ago a carload of peaches came to Medina. A man came with them, and, with the help of teams, scattered them, not only all over our *town*, but all over the *county*. Even in little towns, or at the cross-roads where nice peaches are unknown, a fine assortment, tastily arranged in a pretty wagon constructed for the purpose, was handed out to those who could afford to pay for them. They were assorted in regular sizes, as oranges are assorted. The smallest were sold as low as 50 cents a bushel, and then went on up, according to size and quality, to $2.00, or even more, a bushel. As the car stood several days near our store, I became pretty well acquainted with the proprietor. I felt that he was doing good. He came from a locality where peaches were so plentiful they could not have been all disposed of in any other way. He gathered enough together to load a car, then asked the railroad companies how low they would place the car in the town of Medina. Then he came with his men and teams, and scattered them all over the country; and when one town was supplied he went to another, and so on. About the same time, a carload of beautiful Jersey sweet potatoes was dropped on the track near the peach-car. This man, too, had horses and drays for taking the potatoes around to neighboring towns. He accosted me as I stood on the walk enjoying the sight (for I did enjoy it) in words something like these:

"Mr. Root, how much can you afford to give per bushel for Jersey sweet potatoes like these in my hand?"

They were so exceedingly nice I was afraid his stock might not come up to sample, and I suggested something of the kind.

"They are right here in the car, Mr. Root; and if the whole carload is not just as good as these I have in my hand, of course you will not buy them."

I was a little prejudiced against him because he looked something like a Jew, and I confess I rather expected to be cheated in measure and quality, or something of the sort. But he gave good heaping measure—better than we are accustomed to get and give; and when I found that his potatoes were, if any thing, *better* than the samples he showed, I felt ashamed of myself. This man with his drays went all over the town and adjoining towns, giving many of the people perhaps their first taste of a *real nice* Jersey sweet potato, and I felt that he was a public benefactor. He was taking the surplus product from one locality, and, at a great deal of expense, scattering it about in a locality where it was almost unknown. The sweet-potato-car and the peach-car were to me a suggestion of something pleasant—a glimpse of brighter days in the future, for some who had toiled hard to raise crops and couldn't sell them after they were raised. The idea seemed to suggest to me a remedy for the complaints that have been made, to the effect that "farming does not pay," and also for a remedy, perhaps, for the present state of affairs when country people are leaving their farms, and pushing into towns and cities. What has been bringing this state of affairs about? You may say, perhaps, the march of progress and intelligence. Yes, I think that is right; and I think, too, that I see through it all a plain fulfillment of the promise in our text. You may think my conclusions are far-fetched. Perhaps some of you may say, or suggest, rather, that the peach-man and the potato-man were probably not Christians at all, and I really do not know whether they were or not. I know only this: That, when we bought nearly a wagonload of the peach-man, and I suggested that perhaps he would retail them around at the houses for less than we paid, before he left town, he looked me full in the face and said, "Mr. Root, I am trying to be an honest man; and when I promise you that, if I find it necessary to lower my present prices on peaches, you shall have the advantage of the reduction as well as those who buy later, I mean to keep that promise. I expect to bring peaches to Medina again, and I know the value of a good reputation for honesty and fair dealing as well as you do."

I watched the man narrowly after that; and although he was bright and energetic, and worked hard in getting off his peaches in every way possible, so as to get away before they spoiled on his hands, I did not detect a single thing in him that looked like unfairness; neither did I find any thing amiss with the man who sold the potatoes. Now, the point is right here: Whether they were Christians or not by profession, they were in a Christian nation; and I believe that Jesus meant the promise in our text to include nations as well as individuals. I think he meant we might read it thus:

"If any nation of people abide in me, and my words abide in them, they in their prayers may ask what they will, and it shall be done unto them."

You will notice it is easier to believe this than it is to believe it of individual beings. In fact, no one would think of disputing it when applied to a nation.

It has often been said, and truly said, that learning to raise fine crops is only a part of the business of farming or gardening. The other part is in disposing of all you can raise on a certain area; and perhaps as many blunders are made in securing a crop that can not be turned into cash as in failing to get any crop at all. Many of us have had experience in producing a crop when it was not wanted, or in producing a crop so far from market that it could not be disposed of profitably. Well, the little sketch I have given you indicates the line in which these difficulties are to be met and conquered. Yes, and the people who are starving across the seas are to be rescued and saved at the very same time we succeed in getting paying prices for our products. Those who are suffering from a lack of food, probably sent up earnest prayers to the great God above, if any class of people ever did; and I hope that others who raise large crops also remember to ask the great Father above to help them in disposing of their crops. I hope, too, that, in their prayers, they remember the starving ones, and ask God to help them in their desires to relieve the suffering. Now, in answering these prayers from two different classes of people, one of the great agencies to be employed is the railroads; and although some of you feel pained when I call railroads a gift from God, it seems to me to become plainer and plainer every day that the railroads *are* one of God's agencies. They may not be managed by Christian men, and they may, too, oftentimes be in the hands of unjust men and extortioners; but for all that, our railroads are through a Christian nation, and they are doing a tremendous work in relieving suffering and want in the ways I have indicated. I know full well of the complaints that are made about extortionate charges; but, dear friends, you can almost always find out beforehand what they are going to charge you. The peach-man and the potato-man both doubtless asked the question, "How low can you deliver my carload in Medina, if I decide to go into it?" If the railroad companies named a price, and the price was accepted, it seems to me they have not done so very badly. They are working hard to get something to do, just as you and I are. We hardly ever, of late, have a full carload of stuff sent anywhere unless two or more railroad companies bid for the privilege of carrying it; and sometimes half a dozen different railroads urge us by making low offers. Sometimes they carry freight so low that they do not pay expenses. Our new east and west road is in just that predicament, and I really feel sorry for them when I see how hard they are working to get trade of some kind. Of course, they did not get much if any sympathy when, in their efforts to work up trade, they started Sunday excursions; and I shouldn't wonder if they have found out already that it does not pay.

During the past two weeks I have been over their road several times. I have talked with the officers about their contemplated improvements, and they have told me, too, of their cramped financial condition. I have become acquainted with their bosses, and with the men who shovel the dirt. I know how many locomotives they have on their whole line. In fact, I have learned to feel so anxious for their success that I feel a pleasure every time a loaded train passes our place. I like to get a pleasant smile from the engineer and from the fireman; and I really believe I love the sight of the locomotives, even if they do shriek in the dead of night, and send smoke and grimy soot in the direction of our house when the wind is that way. Oh! you do not know how much happier we are when we become acquainted with men and things, and through this acquaintance learn to understand them and finally to love them.

Some of you who have heard the talk within the last few years in regard to the hated middlemen may think it a little funny or odd that I should see in these same obnoxious middlemen God's messengers to bring about his promises. But, dear friends, is it not true that the middlemen are the ones who usually do the work of saving people from starvation? I saw a little clipping in a paper, that haunts me. In speaking of the suffering in Russia, it mentioned a poor widow who went on foot to a neighboring town to see if it were not possible to find food to save her little ones from starving. But, alas! when she returned they were all dead, having, in their fierce hunger, filled their little stomachs with rags and dirt! Oh what a sight, and what a thought! My friend, imagine *your* children—your little helpless ones—being driven to such a pass as this, and you powerless to aid them! I would this minute rather be a messenger, or middleman, if you choose, to carry food to such suffering ones, than to have the most exalted position on earth; and I feel guilty, almost every hour, when I see the great waste that goes on here in this God-fearing land of ours. A few days ago I was urged to buy potatoes by the carload at 18 cents a bushel; and yet with this very fact right before our eyes, children are starving, and filling their little stomachs with rags and dirt, in the frenzy caused by hunger. "Lord, help!" wells up, and yet I fear I am not doing what I can to bring about an answer to my prayer.

You all know that I do not know very much about politics; but of late I have been trying to know more about the different political parties, and, in short, to become acquainted with them; and I believe I can say just now that I love them all. Yes, I love them especially on this election afternoon. I do not know how the election will turn out, and, in fact, I do not feel nearly as much anxiety as some do. My greatest anxiety is, that all of us may be abiding in Christ Jesus, and his words abiding in us. There is one kind of infidelity and unbelief, however, that I have seen manifesting itself through one or two of the great political parties. This infidelity comes in line with the expression that "farming does not pay." The people who quote this seem to have lost faith, not only in farming, but in the affairs of our nation. They have lost faith in our finances; and some of the speakers have even said we have the worst and most dishonest state of finances on the face of the earth. Now, are you much surprised when I tell you that some of these same people are in debt, and blame our government and our finances because they do not get out of debt? At least two individuals have said, to my knowledge, that they knew they were deeply in debt, and did not expect to ever get out of debt, intimating, at the same time, that there is no use of trying to get out with such a condition of affairs in the government as we have in the United States. They not only said they had lost hope, but intimated, if they did not say so outright, that they were not going to *try* any more. Oh what a state of heart for any one to be in! Suppose somebody owed you a hundred dollars, and when you talked to him about it he should say that he could not pay it then, and that he had given up all hope of his ever being able to pay it at all. Then if he should add that he was not going to *try* any more to pay it, what would you think of him? Or suppose he should, by his actions as well as by his words, put it like this: "I know you loaned me a hundred dollars when I was needy, and that you loaned it with full faith and belief that I would work hard to pay it back again. It was a great accommodation to me at the time, and I fully expected to pay it. But I have become discouraged, and have given up trying. I know it is not a very comfortable feeling to think that I have taken your hard earnings and can not pay you back; but it is no worse than hundreds of others are doing who have their homes and farms mortgaged, and we must all give up, and all go down together. The crash has got to come sooner or later, and for my part I do not care very much how soon it does come."

Dear friends, I have never yet heard any person give utterance to any thing quite as bad and hopeless and sad as the above; but I have heard different persons make speeches that altogether amounted to it. It comes from losing faith in your fellow-men, from losing faith in your country, from losing faith in yourself; and finally from losing faith in God and in his promises through the Bible. Just think for a moment how far, how very far away, a person's attitude of heart is who gives way to such thoughts as I have expressed, from the brief little promise in our text! "If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you." The Bible text is bright and joyous with hope; the other has the sadness of despair and ruin and death.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

A TRIP THROUGH MICHIGAN; GRAND RAPIDS LETTUCE, ETC.

Business matters and other things took me on a week's trip through Michigan; and I want to tell you some of the things I saw and found out. In the first place, I wish to emphasize again what I have spoken of so many times before—the importance of being sociable and of getting acquainted while traveling. Of course, I do not mean by this that we shall bore everybody indiscriminately whom we come near. Many traveling people have, with good reason, learned to really feel a disgust for the individual who is constantly talking to everybody, and intruding his private affairs, without having discrimination enough to know who wants to talk and who does not. Taking it for granted, however, that you are at least reasonably well informed in regard to men and things, I most earnestly urge the importance of being cheerful, and taking an interest in things generally, being ready to lend a helping hand, and that you listen to what is going on. As an illustration: Almost at the very outset I discovered that I wished to get off at a certain station near my destination, as it would save me considerable delay and travel. Now, I did not even know the name of this station, nor on what road it was located. While having my hair trimmed, as the barber seemed to be sociable, and a well-informed man, I told him my predicament, and was greatly pleased to find that he once carried on business in that very locality, and therefore he could tell me all I wanted to know.

My first point was the lettuce-greenhouses at Grand Rapids, Mich. I found our good friend Eugene Davis as busy as ever, and as full of enthusiasm in his chosen industry. He was just completing two new greenhouses. In fact, when I found him he was building the chimney to one of them with his own hands. He insisted, however, on taking off his mortar-covered apparel, and hitching up so as to take me around to see the new houses just going up. Eugene Davis was not only the introducer of the Grand Rapids lettuce, but he is the pioneer lettuce-grower. It seems a little funny, but nowhere else on the face of the earth do they grow lettuce equal to the product of Grand Rapids. Even away down in Cincinnati they must send to Grand Rapids for their choice lettuce. Now, it can not be in the soil and climate, as it is with the Kalamazoo celery, for the lettuce is all grown under glass, or nearly all. Friend Davis found out how to do it, and his neighbors all around are copying him. He took me around to so many different places where new greenhouses have recently been put up, or just going up, that I was really bewildered. Although it was a cool November day, quite a few were handling putty and setting glass. Perhaps there are now something like a hundred houses, solely for lettuce-growing, in the vicinity of Grand Rapids. These houses are usually 100 feet long by 20 or more broad. (See full description in our book, "What to Do, and How to be Happy while Doing it.") Some men have one house, others three or four, some half a dozen. Friend Davis has now nine houses in all. I made the visit principally to satisfy myself on several puzzling points in greenhouses. For instance, shall we lap the glass, or butt the ends together? Friend Davis tries both, and does not see much difference. If I am correct, however, he, with what experience he has had, would butt them together instead of lapping them. Shall houses stand north and south, with the slope alike on both sides, or shall they face the south, with a long slope fronting the sun, Peter Henderson fashion? Friend Davis favors the latter plan, although a great many new houses are north and south. Where one has two or more houses, shall he place them close together or leave a driveway between them? Of course, there is economy in having them close together, and still more economy in having the middle wall omitted, so the two houses are virtually one. This will do for houses standing north and south on level ground. With the Henderson style, however, they must either be on a side-hill, or leave a roadway between them; otherwise the house further south will shade the one behind it. This may be remedied, however, by using a side-hill with a gentle slope. In this case, however, the two houses must not communicate; for if they do, the hot air, being lightest, will push into the house standing highest.

Shall we warm our lettuce-houses with steam, hot water, or flue? Friend Davis prefers the flue, and burns wood. A good many who have steam and hot water in some of the houses, and flues in others, give the preference to the flues. Friend Davis tells us that a flue is much the cheaper; and in winter time, when the houses are inclined to be damp, the flue seems to dry it out more effectually than either hot water or steam; and this enables lettuce to receive with safety more frequent waterings. Another objection to having the houses stand close together is the snow that comes down in the gutter. Unless the houses are made unnecessarily strong, the great weight may break in the sash. Of course, it can be shoveled out, but this is a cold and disagreeable job, and somewhat dangerous, both to the glass and to the operator.

Friend Davis gave me the real history of the origin of the Grand Rapids lettuce. It is *not*, as it has been said, a selection from the Black-seeded Simpson, but it is probably a cross between the old Hanson lettuce and a strain, name unknown, brought, by an old friend of his, from the old country, sixteen or seventeen years ago.

Now, we have here a wonderful illustration of what one comparatively obscure person may do in developing and opening up a new industry. Friend Davis first placed on the market a sort of greenhouse lettuce that does not make heads. By experimenting he developed a greenhouse specially for its growth, and also in the same way selected the very best soil and fertilizer. What do you think they are? Simply sandy loam and horse manure! Four or five inches of sandy loam, such as is found anywhere around Grand Rapids, and two inches of fresh clean horse manure, spread over it and forked in as described in our book, What to Do, is all. This gives rank, white, crisp lettuce, superior to that raised in any other soil manured by compost. Fermented manure has been tried again and again, but it does not do as well. Chemical fertilizers have also been tried, but they are "no good." The stables in the city save expressly for him fresh manure without straw. When it is spread over the beds, it is beaten or pounded up fine with a stick a little heavier than a piece of lath, having some short nails driven into it. No matter how many greenhouses his neighbors put up, for the last fifteen years the demand has been, most of the time, beyond the supply. Of course, this may not always continue; but where the quality produced is equal to that raised by friend Davis and his neighbors, there seems to be no lack of a market. Even at the date of my visit, Nov. 4, the grocers of Grand Rapids were offering 20 cts. a pound; and the proprietor of the only lettuce that was fit for market would not let it go. I asked him why; and he said that, in two or three weeks, it would make such a growth as to make nearly double the number of pounds per square yard, therefore he preferred to let it stand in the way rather than to sell it as it was at 20 cts. per pound. Just one man, with enthusiasm, and a love for work, both with brain and muscle, has built up this great industry. Dear reader, this world is not overstocked with such as he. Does not this little story stir in you a determination to wake up and do likewise—not in raising lettuce necessarily, but in a thousand and one ways that God has provided for those who love him through his works?

I now want to give you another illustration right along in this same line. When I arrived at Manistee my brother-in-law said I must go and see his friend Mr. Johnson. When he told me he was a man who made clocks, I remarked it had been so many years since I had had any thing to do with clock-making, perhaps I should not be well enough posted to appreciate him. He remarked with a smile, "Oh! you wait and see. I guess there will be no trouble but that you will find something interesting."

While I was trying to imagine how a single man could build clocks away up there in Manistee, we were ushered into a little square building standing by itself out in the dooryard. Although this building was plain, it was a rather pretty piece of architecture after all, and seemed to have been built for some special purpose. Let me explain. Mr. Johnson is building tower-clocks. He owns a rather pretty machine-shop; and when they did not have orders for other machinery he amused himself by making these. When he puts them up in a church or court-house he is expected to regulate them and warrant them; and although he is tolerably well along in years, he began almost in his old age, as it were, to study horology and the matter of time. A sun-dial did not satisfy him. He wanted something that would enable him to set his clocks to a tenth of a second; and because he loved the work, he built this little room I have mentioned, for an observatory. The instrument in the center of the room, in the first place, must be absolutely solid; and one would smile at the piece of engineering that held it firm and true and *still*. Then you would smile again when you saw the expensive apparatus he used to get it exactly level. Out through a comparatively small window his telescope pointed, and on the blackboard were the names of fixed stars, and rows of figures to indicate astronomical calculations. He told me more about latitude and longitude during our visit than I ever knew before. Then he told me about the latitude and longitude of the heavens as well as of the earth; and he turned his books over and showed me the way in which columns of logarithmic figures were used in their computations. Then he discoursed about time on our earth, and the recent arrangement the railroads had been compelled to adopt, dividing off this continent into hours as well as degrees. When I suggested that his window should have been larger so he could see the planets, and especially get a glimpse of the rings of Saturn, which are now, as we are told, staggering like a drunken man, so that astronomers are watching day by day to see them split to pieces and turn into moons, or something of that sort—when I told about this planet Saturn he at first did not say any thing, but finally turned to me with something like this:

"Mr. Root, I have never seen Saturn through that telescope, and I do not want to see it. I haven't *time* to look at Saturn. More stars pass before that little window of mine than I can ever look at and get acquainted with during all my life."

Here was a home-made scientist and a home-made astronomer who found joy and happiness in studying, day after day and year after year, one little side-show, or side-*light*, perhaps, of astronomy—that part of astronomy which pertains to taking the latitude and longitude, and getting correct time. If I do not myself quite understand what I am talking about, perhaps some of you do. Well, this man, in his investigations, had visited many prominent scientific men who were working right in his line. Yes, more than that; as he climbed up into the stars and looked about him, these great professors, with their piles of books and long columns of figures, recognized him as a comrade and reached down to him a helping hand. They helped him to step up over the topmost round of the ladder on which he had so painfully and slowly climbed up, and gave him assistance; for, you see, he was just prepared to grasp ideas, as a hungry man grasps for food; and when he met with somebody who, like your humble servant, could "catch on" now and then to what he had been working out about the stars, he felt rejoiced. Oh! didn't we have a pleasant visit for an hour or two? My brother-in-law smiled and looked happy too, when he saw with what enthusiasm we two compared notes.

I very soon tried to interrupt him by asking him if he could go through all this and not come out a Christian, full of love for, and faith in, the great God above. At first I thought he rather evaded the subject; but when he got to the right point he satisfied me fully. He finds great joy in treading the paths, as some one has said, that the Almighty had trodden before him, and finally ended in a speech something like this:

"Mr. Root, if Robert Ingersoll were to get a telescope like mine, and study God's works as I have done, for just one month, the next month after that he would be going around starting prayer-meetings." He may not be the author of the above thought. In fact, I think he said as much. He showed me a pile of books. Said he, "Mr. Root, when it comes Christmas or Fourth of July, the rest have some money to spend, and that is all right; but here"—and he took up several books in his hands—"these are *my* Christmas and *my* Fourth of July; and when somebody talks about going on an excursion to have a good time, I just take *my* excursion here in this little room, with my telescope, transit instruments, and books."

My companion told me afterward that Mr. Johnson's daughter was the one who kept the room and apparatus looking so neat and tidy; and he had also a son who took charge of the machine-shop in order to enable his father to pursue his beloved studies pertaining to terrestrial and celestial meridians and parallels.

It just now strikes me that this part of my visit does not belong to gardening; but I think I will let it remain in this department, after all, for it shows so well what one single human being may do in the way of acquiring an education in the line of the higher mathematics, even after he is *fifty years old*. Yes, and he too, like Eugene Davis, worked it all out at home, in his own *garden* and *dooryard*, with the assistance of his *own* family. How does it strike you, my friend? Are *you* too old to study the works of God? His beautiful apparatus and observatory cost quite a lot of money, of course, and he told me had prayed for means to go on with his studies in a way he had never prayed for any thing before in his life, and God had blessed him in his finances, and had blessed him with a son and daughter who loved to help him, and had blessed him, too, with a loving wife who shared his enthusiasm, and listened to his outbursts of joy when he had solved a difficult problem; but, alas! his dear wife is entirely blind. Through *his* eyes she must see, and know of these wonderful things above; and before I left the city he called to me, saying he was very anxious to have his wife *see* Mr. Root—said seeing being accomplished by a shake of the hand and the expression of a few words of faith, hope, and thanksgiving. So you see, dear friends, that eyes *alone* do not always make us happy; neither does the loss of sight *always* make us unhappy.

CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will meet in Grand Rapids, Mich., on Thursday, Dec. 31st, 1891, and Friday, Jan. 1st, 1892. G. E. HILTON, Sec., Fremont, Mich.

The Eastern Iowa Bee-keepers' Association will meet in De Witt, Ia., Dec. 2 and 3, 1891. Bring in your report. There will be a fine place to exhibit every thing pertaining to the apiary.
FRANK COVERDALE, Sec., Welton, Ia.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Thursday and Friday, Nov. 19 and 20, at 9 A.M. Arrangements have been made with the hotel for back room, one bed, two persons, $1.75 per day each; front room, $2.00 per day for each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip. W. Z. HUTCHINSON, Sec., Flint, Mich.

In honor of the visit of Prof. A. J. Cook and A. I. Root. Mr. C. W. Abbott. President of the Southern California Bee-keepers' Association. will call a special session. to be held in Los Angeles. at the Chamber of Commerce. January 6 and 7. 1892. The Chamber of Commerce is a good location. and the California permanent exhibit in an adjoining room will no doubt be of interest to all, as it is one of the best exhibits of the products of this section in the State. G. W. BROADBECK, Sec.

Los Angeles, Nov. 7.

As previously stated, the meeting of the North American Bee keepers' Association will take place at Albany, N. Y., Dec. 8 to 11. Our president has been working hard, and has secured reduced railroad rates from Chicago and the Mississippi River, and from the South. The meeting promises to be the best in the history of the association, and we hope the West will send a good delegation. Besides personal members' attendance, we expect every local and State association to send one or more delegates. This will be a good occasion for Western bee-men to become acquainted with the noted bee-keepers of the East, nearly all of whom will attend this meeting. Bee-keepers desiring to attend will please send their names either to the president, Mr. P. H. Elwood. Starkville, N. Y., or to the undersigned, as we intend to publish a full list of those who are expected to be present. C. P. DADANT. Sec., Hamilton, Ill.

PROGRAM

of the North American Bee-keepers' Association, to be held in Agricultural Hall, Albany, N. Y., Dec. 8 to 11.

DECEMBER 8—INFORMAL MEETING.

FIRST DAY—WEDNESDAY, DEC. 9.

9 A. M.—President's Address.—P. H. Elwood, Starkville, N. Y.

Appointment of Committees, and routine business. Question-box.

2 P. M.—The Prevention of Swarming.—W. F. Clarke, Guelph, Ontario, Canada. Discussion. Question-box.

7:30 P. M.—The Outlook for Apiculture at the Columbian Exposition.—A. B. Mason, Auburndale, O. Discussion.

SECOND DAY—THURSDAY, DEC. 10.

9 A. M.—Election of Officers. Selection of next place of meeting. Business of the Association. Volunteer contributions. Discussion. "Prices of Honey and Sugar."

2 P. M.—Can we settle upon two sizes of sections as standard ?—C. C. Miller, Marengo, Ill. Discussion: Question-box.

7:30 P. M.—The Bees, the Location, and the Apiarist.—G. M. Doolittle, Borodino, N. Y. Discussion.

THIRD DAY—FRIDAY, DEC. 11.

9 A. M.—The Italian Bees. What are the principal points of excellence, and to which qualities should we give the preference?—G. H. Knickerbocker, Pine Plains, N. Y. Discussion. Question-box.

2 P. M.—Some facts not generally known about rendering beeswax.—R. F. Holtermann, Brantford, Canada.

ADJOURNMENT.

REDUCED RATES ON RAILROADS.

One and one-third regular fare for round trip. The concession is for delegates and others going to Albany to attend the North American Bee-keepers' Convention. Dec. 8—11. 1891, from the following described trunk-line territory:

By the Central Traffic Association from all points in Ohio, Indiana, Illinois, Pennsylvania, as far east as Pittsburg; New York, as far east as Salamanca; and Ontario, Canada, as far north as Toronto. Trunk Line Association of New York, Pennsylvania, and New Jersey, and the Southern Passenger Association, which includes all the principal roads of the Southern States.

INSTRUCTIONS TO PERSONS ATTENDING THE MEETING.

1. The concession is for delegates and others going to Albany from any of the above described trunk-line territory.
2. If the startingpoint is located on some small road, or one not in either one of the three trunk-line associations making the concession, tickets should be purchased only to the most convenient place where a trunk-line certificate can be obtained, and thence by direct routes only, through to place of meeting.
3. The going ticket must be purchased within three days before, or not more than three days after, the opening date of the meeting, otherwise no reduction in fare will be made on the return passage.
4. Each person availing himself of the concession will pay full tariff fare going to the meeting, and get a certificate filled in on one side by the agent of whom the ticket is purchased. (The agents keep the certificates in stock.)
5. Present the certificate to the secretary at the meeting, that the other side may be filled in. Certificates are not transferable.
6. On presentation of the certificate, duly filled in on both sides, within three days (Sunday excepted) after the adjournment of the meeting the ticket agent at Albany will return the person to his starting-point at one-third regular fare. The return ticket will be issued over the route used in going to meeting, and will be available for continuous passage only.

VERY IMPORTANT.

7. It is absolutely necesary for each passenger, before starting, to obtain a certificate from the ticket agent at the point at which the going ticket is purchased, otherwise said passenger will be unable to obtain special rate for return journey, and will be obliged to pay full tariff rates in both directions.
8. Delegates, and others availing themselves of the concession, should present themselves at the office for certificates and tickets at least thirty minutes before the departure of trains.
9. Every person attending the meeting should get a certificate, no matter how short the distance, as the more certificates are signed at the meeting, the easier it will be to secure reduced rates another year.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
Illustrated SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—JOHN 17:15.

Do not fail to hear Dr. Miller sing some genuine bee-keepers' songs at the North American convention at Albany. The words were composed by the vice-president, Eugene Secor, and the music by the doctor himself.

BRO. NEWMAN, of the *American Bee Journal*, has just written us that the condition of his health is such that he probably will not be able to attend the next convention of the N. A. B. K. A., at Albany. No one has worked more earnestly or faithfully for the success of this organization than he, and we shall all regret his enforced absence.

WHEN we attend conventions, whether it be the North American or that of any other association, let us lay aside, at least for the time, all personalities and personal flings. Some conventions which we have attended in the past year have been marred a little by some unpleasant things said of those in attendance. We come to love and to learn, not to give and receive personal attacks.

THE first number of *The Bee Journal*, published at Winona, Minn., puts in a creditable appearance. The articles and editorials are good, and we wish it success. We regret to see it take a name so similar to the "Old Reliable," published at Chicago, *The American Bee Journal*. In another column will be found an excellent clipping from the new paper; but for the life of us we hardly knew how to credit it in such a way that it would be known from the Chicago bee-journal. There are lots of good names; for instance, *The Northwestern Apiarist*. It is not too late to change now.

THIS journal will probably be in your hands about the time—possibly a little before—the convention in Chicago meets. I expect to go home with Dr. Miller, Marengo, Ill., and stay a couple of days; then I shall be a couple of days in Mitchell, South Dakota. From that point I shall go to Denver, Col., about Nov. 30. On the morning of Dec. 1 we leave Denver for Salt Lake City, to attend the convention there Dec. 3d and 4th. Letters may be addressed to me at any of the above points. Then I expect to visit H. A. March, Fidalgo, Wash. Returning, I shall be present at the convention in Sacramento, Dec. 16 and 17. Descriptive notes of travel will appear in each issue, commencing with our next.

UNCLE AMOS has become a second time a grandpa. May be some of you would like to rejoice with us in the advent of a little stranger that arrived at the home of our son-in-law John, on the morning of Nov. 13. John, you know, is the husband of our eldest daughter, Maud. The young mother is as happy and smart as can be, and the inhabitants of Rootville are all talking about the two boys, Howard Root Calvert and Leland Ives Root, who are to take charge of and keep up the name and reputation of the Home of the Honey-bees when their fathers become old and burdened under the load of business. May God's blessing rest on the boys! and while they build on earth, may they also have the spirit that will enable them to build for eternal life on the solid rock. Christ Jesus.

LOOK OUT FOR HIM!

Do not send money or any thing else to a man who has recently headed his stationery as follows:

JOHN A. BRIGGMAN,
General Commission Merchant and Broker.
Melons, Potatoes, Apples, and Cabbage, in Car Lots a Specialty.
P. O. Box, 151.] [Telephone 751.
Columbus, O.,............189

And, by the way, do not send honey to *anybody* unless you have first found out from some bank or reliable person that he is trustworthy. After some further investigation we found that he was in Columbus; but when last heard of he was in Pittsburg, probably starting a commission house there.

WHO WILL BE AT ALBANY.

Since the announcement elsewhere, we have learned that, in addition to the other distinguished bee-keepers mentioned, there will be present, at Albany, J. E. Crane, Julius Hoffman (the inventor of the Hoffman frame), George H. Ashby, E. L. Pratt, John Vandervort, Frank Benton, Thomas Pierce, and last, but not least, Capt. J. E. Hetherington, the most extensive bee-keeper in the world. Verily, this promises to be the best attended convention in many years; and never before in the history of the association, if we are correct, have we had the assurance that so many eminent bee-keepers would be present. Program, railroad rates, etc., will be found in another column. We are told that some of the most interesting topics which are expected to be brought up are not mentioned in the program, for the reason that it was not possible to learn whether the parties assigned to them could take them.

ANOTHER SAFE ARRIVAL OF IMPORTED QUEENS AT HONOLULU.

We have just been advised of the safe arrival of three untested queens at Honolulu, mailed here Sept. 11. They were successfully introduced, and are doing nicely. Our customer writes: "They are little beauties, and it does one's eyes good to look at them. They were as lively as crickets when they arrived." He further tells us that, out of the seven we have already mailed him, six were received alive. This, for a distance of nearly 6000 miles, is good enough; and if the dozen or so we have mailed to Australia do as well, we will try sending a queen around the world by mail. It looks almost impossible, but we believe it is among the possibilities now. Say! why don't you who import Punic queens have them sent by mail direct from the coast of Africa, and thus save you a very great expense. We hope, in a future issue, to give an engraving, with complete instructions on the foreign mailing of queens.

HOW TO SHARPEN SHEARS.

Dr. Miller says he does not know how, therefore I will tell you as well as I can; and as it is quite likely some of our readers can give us some additional hints, we invite them to send along their contributions; and, all together, it will be strange if we can not furnish our wives and daughters with shears that will cut beautifully—yes, clear to the point. Somehow it seems as if every time I ask Mrs. Root for a pair of shears, they are in such bad order that I pronounce them a disgrace to the household.

First, see to the rivet. You will almost always find it loose. Most shears nowadays have a screw that can be turned up with a screw-driver. Turn it up so as to be just right and not too tight; then, unless it turns very hard, you will need to take a light hammer and head down the rivet until the screw can not turn of itself. To do a good job you must lay the head of the screw on something very solid—the head of an ax or flat-iron, or an iron wedge, for instance. After you have got the screw just right, take the oil-can that belongs to the sewing-machine and lubricate the joint so it will work easily, even if it is close. Now see whether the edges of the blades strike each other, and hug close at every point in closing. Sometimes when the handles are shut clear together the points of the blades are open a little, crocodile fashion. Now, it is very shiftless to have shears around in this predicament. If you look at the picture, inside first cover, last issue, you will notice a little projection on one of the handles where it strikes the other. This projection is to be filed or ground off until the points just pass each other and no more. If the blades are bent, go to work skillfully with your hammer and anvil, and you can get the bend out. After having done so you can sharpen with grindstone or whetstone; but I prefer a very fine, hard-tempered, flat file, such as you can buy at the jeweler's or at most city hardware stores. Fasten the blade of the shears in the vise, and with the file you can give it just the shape you want; then finish off with an oilstone. Do not file or grind the blades on the inside unless there has been a crook, and you wish to dress out the crook. This is a little difficult, but it can be done if you take pains. The grinding should be done as you grind a chisel or plane-bit—all on one side. When the shears are held on the grindstone they should be held steady, and at an exact angle. If very dull, keep grinding until the round dull corner disappears. Then with a whetstone dress off the feather edge, and, with a drawing motion, make a keen sharp corner the whole length of the blade. You can improve shears made of chilled iron in this same way; but as a rule it does not pay to waste much time on them when you can get good steel-blade shears for from 20 to 50 cts. With a file you can easily tell whether your shears are too soft. If so, the cheapest way is to get a new pair. In fact, I believe a new pair is very often about as cheap as you can fix a pair of old ones that have always been poor.

A CALIFORNIA STATE BEE-KEEPERS ASSOCIATION; A CASE OF "BAMFUZZLING."

The Southern California Bee-keepers' Association met in convention Oct. 23, at Los Angeles. By reading the accounts in the California papers, it is evident that they had a stormy session. A majority of the members, it seems, and with some show of reason, desired to merge the organization into a State association. In order to accomplish this an amendment was offered; but as it required a two-thirds vote, it was lost after some wrangling within just one vote, much to the displeasure of the majority. The president and some others opposed the amendment with all their might and main. The report goes on to say that "the eloquence grew vituperative, and the sacred walls re-echoed with expressions sometimes inconsistent with the Christian doctrine of love." At the election of officers which followed, the majority seized the opportunity and elected a new president. When a reporter approached one of the members, the latter said that their former president had been bamfuzzling the members long enough. "Bamfuzzling," said the reporter drolly, "is probably a technical expression referring to the honey business." Joking aside, we very much regret the turn that affairs took. and we must admit that we are on the side of the majority, because, if the great State of California with its thousands and perhaps its millions of colonies and unlimited honey resources, does not already have a *State* bee-keepers' organization, it surely *ought* to have one, and mere technicalities in the constitution or in parliamentary law ought not to stand in the way or give rise to ill feeling. We trust that a State organization may yet be perfected.

THE NORTH AMERICAN AT ALBANY.

The time of the convention of the North American Bee-keepers' Association is Dec. 8 to 11. at Albany, N. Y. The president and secretary have been working hard on the program, which will be announced soon. Reduced railroad rates have been secured. Just what they are, and over what roads they extend, we are at present not informed. We presume they apply to the Lake Shore & Michigan Southern, New York Central. West Shore lines, and others leading into Albany, at one and one-third fare for round trip. Leading bee-men will be present. We already have authority for announcing that, among other distinguished bee-keepers, there will be present Dr. Miller, of Illinois; Dr. A. B. Mason, of Ohio; W. F. Clarke, of Canada; G. M. Doolittle, of New York; Geo. H. Knickerbocker, of New York; R. F. Holtermann, of Canada; A. E. Manum, of Vermont; W. Z. Hutchinson, of Michigan; Hon. J. M. Hambaugh, of Illinois; S. Corneil, of Canada; Vice-President Secor, of Iowa; President Elwood, of New York; Secretary C. P. Dadant, of Illinois. Of course, we expect to be present ourselves, and to see a good many notables besides those mentioned. With such a coterie of bee-keepers, especially when we can have the two doctors, A. B. Mason and C. C. Miller, we are bound to have a good and profitable time. It can not be otherwise; because when so many from a distance have signified their intention of being present at this early date, it means a *rousing big attendance*. So, be sure to come, whether you have received a special invitation or not, and bring your wives, your sisters, and your sweethearts. All ladies are *specially* invited. Albany is a pleasant city, has good hotel accommodations (see notice elsewhere), and is located among some of the largest and best bee-keepers in the world.

Later.—The program and reduced R. R. rates are at hand and is published elsewhere.

SPECIAL NOTICES.

THE LAST CALL.

Remember, only two weeks remain in which to receive the largest discount for early orders; namely, 5 per cent. A good many have written, expecting to take advantage of the discount before Dec. 1, and we are prepared to meet the wants of a much larger number. Send on your orders.

POTATOES AT A LOW PRICE.

We have not yet managed to buy any at 25c yet, but we can sell very fine nice White Star potatoes at only 40c per bushel, if you can't do any better at your home. The above, however, does not include package; a sack to hold them will cost 10c for 2 bushels; or a barrel, 15c for 3 bushels. If you want them in new slatted potato boxes, 15c for each bush.

SOMETHING TO SELL.

Almost all periodicals, especially at this season of the year, are offering something for sale, or something for premiums, etc., and this is all right if honestly managed; but instead of continually asking for your money, I have wondered how it would seem to turn about and let *you* sell *us* something; so, here goes. We want alsike, buckwheat, honey, wax, etc., and we are going to try to see how many more things we can manage to buy of you.

COMB AND EXTRACTED HONEY.

We are selling choice white comb honey, in 12 and 24 lb. cases, at 17c per lb. In lots of about 200 lbs., in cases packed in large crates for safe carriage by freight, 16c per lb.

Extracted basswood and clover, mixed, in 60-lb. cans, at 9c. Texas basswood, in 60-lb. cans, at 8c; or in barrels of about 400 lbs., at 7¼c. Samples to intending buyers on application.

MOSS FOR PACKING STRAWBERRY AND VEGETABLE PLANTS, OR FOR GENERAL GREENHOUSE PURPOSES.

By taking a very large stock during the recent dry weather, so the men could go into the swamps to gather it, we have been enabled to offer the nicest moss I have ever got hold of, at the extremely low price of 25 cents per bushel. If wanted by mail, we can send it to you in quantities of one peck for only 20 c., postage and all. Moss is a rather difficult substance to measure or weigh, as its weight depends almost entirely on the amount of moisture it contains; and if measured by the bushel, it depends, likewise, on how hard it is packed into the bushel basket. We will, however, try to give you fair measure. As a mulch for starting plants in seed-boxes and seed-beds, there is nothing in the world equal to it.

THICK-TOP BROOD-FRAMES WITH DIVIDED TOP.

In making up thick-top frames we get on many boards a piece not wide enough for a top-bar, but which will make half of one. Two of these halves make what we call a divided top-bar, which many use and prefer. In putting the frames together, a piece of foundation can be placed between the two halves, to fasten it. Many go to the expense of having top-bars split from one end nearly through the other for the purpose of inserting the sheet of foundation when these divided tops would answer just as well, and can be furnished much cheaper. Since we began saving the pieces as above we have an accumulation of several thousand thick-top frames with these divided tops more than we have had calls for. Our regular thick-top frames sell for $1.50 per 100; but to close these out we offer them at $1.20 per 100, or $2.75 per box of 250; 500 or more at $1.00 per 100, in the flat, without comb-guides. If you want wooden comb-guides, add 10c per 100. Most of them are packed 250 in a box.

SOME TYPEWRITERS AT A BARGAIN.

We have, for the last two or three years, been using exclusively the Remington typewriters in our office, for we believed them, all things considered, the most durable. Besides, there is an advantage in having machines all of one kind, so that any of our operators can use any of them without learning a new keyboard. Something over a year ago the Hammond typewriter came out with what they called the Universal keyboard, by means of which a person who was accustomed to operating the Remington, for instance, could have a Hammond with keys arranged in the same way, and use it without learning over again. After examining the Hammond machine we were so much pleased with it that we have secured one for our use. Dr. Miller and G. M. Doolittle both use the Hammond, deciding on that after a careful examination of other makes. The regular price of a new Hammond is $100; but we have got track of two machines, one with the Ideal and the other with the Universal keyboard, both practically new, and in first-class order, that we can sell for $75 each cash, if unsold on receipt of order. Here is a rare chance for some one. We have also an old-style Remington No. 1, which writes all small caps, *like* **THIS**, which we offer for $25. There is probably more wear in one of these old No. 1 machines than in any other typewriter ever made. We have had this one in use almost ten years, yet it does good work, and, with proper care, will do good work for years to come. We prefer a machine with both caps and small letters, hence we offer this for sale at the above price, which makes it a bargain.

We have also on hand three of the old-style single-case World typewriters in good condition, that we will close out at $5.00 each. Regular price is $10.00, and these are practically new machines, although they have been in stock for some time. Further particulars, and samples of work, furnished to intending purchasers on application, if not previously sold. We apprehend that, at these prices, they will be snapped up quick.

ONE COLONY Saved from Death the Coming Winter Would Repay the cost of

a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you $50 Richer next Spring. The "REVIEW" and this Book for $1.25. If not Acquainted with the "REVIEW," send for Samples. **W. Z. HUTCHINSON, Flint, Michigan.**

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
2	2	20	⅝	27.
72	2	19	¾	103. 100.
72	2	18	1	61. 53, 48, 35, 22, 22.
36	2	17	1¼	23. 15.
36	2	16	1½	23; 18 in. wide, 40; 24 in. wide, 94, 88.
72	2	16	1½	60. 58, 56; 30 in. wide, 46, 24; 48 in. wide, 48.
18	2	15	2	87, 30; 12 in. wide, 100.
24	2	15	2	100, 90, 69, 52, 33, 13, 12, 60 in. wide, 21, 20.
42	2	15	2	121, 23, 8; 72 in. wide, 36. 33. 9.
48	2	15	2	72, 49 48, 45, 38, 37, 30, 29, 26, 14.
30	1½	19	1	33, 36 in. wide, 47.
42	1½	19	1	85. 59; 60 in., 56; 72 in.
18	1½	18	1⅛	40, 14; 54 in., 12; 60 in., 34
30	1½	16	2½	79; 36 in., 14; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22
36	1¼	19	1⅔	48, 12, 24 in., 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 10; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40; 60 in., 26; 18 in., 50.
32	1	18	2½	85; 24 in., 23; 30 in., 69.
36	1	18	2½	48 in., 30; 60 in., 59.
9	¾	20	2¾	7; 36 in., 55
24	3	16	1	19; 36 in., 86, 42 in., 14.
36	3	15	1⅓	63; 48 in., 60.
48	3	14	1⅞	45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23.
22	4	14	4	107, 68, 35, 17, 15.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24, 23, 18.
42	4	14	5	68, 62, 62, 23, 22, 22 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.

6tfdb

NOVELTY CO.,
Rock Falls, Illinois.

☞In responding to this advertisement mention GLEANINGS.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 64, 63, 63, 63, 62,
25 green	12	100	100	1 75	
5 green	24	100	200	3.50	140. 8, green; 200 black.
35 green	26	100	217	3 50	This is below reg. pr. of 1¾ c.
14 green	28	100	233	4.08	224. 224, green.
15 green	30	100	250	4.37	
11 green	36	100	300	5 25	
6 black	38	100	317	5.54	269, black; price $4.70
5 green	38	100	317	5 54	
3 black	40	100	333	5.83	
7 black	42	100	350	6 12	
15 green	30	100	250	4 37	

A. I. ROOT, Medina, Ohio.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—A good Christian housekeeper without incumbrance, to keep house for a family of three adult persons. 22-23d
J. L. CLARK, Apalachicola, Franklin Co., Fla.

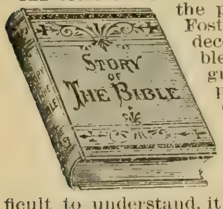
WANTED.—To exchange bee-supplies for extracted honey. 22-23d
J. M. KINZIE, Rochester, Oakland Co., Mich.

WANTED.—To exchange a lot of medical works, shotgun, and a slat and wire fence machine, for Dovetailed hives, fdn. mills, fdn., perforated zinc, wax, or any thing useful. Write for particulars.
JAS. A. MINNICK, P. O. Box 162, Anderson, Ind.

SOME CHOICE BOOKS WHICH OUGHT TO BE IN EVERY HOUSEHOLD.

We do not, as a rule, take much stock in book-agents; but very often some of our best books are sold only through agents. We have so much confidence in the sterling worth of the following books in every household, that we do not hesitate to say that you would be doing your neighbors a real kindness in showing them samples and persuading them to buy and read one or more. There isn't one on the list, unless it be the last one, that the children will not be delighted with, and they could have no better books to read and amuse themselves with than just such as these. By observing the condensed price list below, you will see that, even though you get no more than our price for a single book, with postage added, if you sell several you will save margin enough to pay you for your trouble.

PILGRIM'S PROGRESS, ILLUSTRATED. The following, written a year ago, describes this work so well we reproduce it here: A few Sundays ago I took a notion to read the Pilgrim's Progress over again. I got it down and tried to see how many of the references to Bible texts I could repeat from the knowledge of the Bible I have gained since I read the Pilgrim's Progress when I was a child. I was very much pleased to find out, with a Bible right at hand, that I could repeat most of them—at least in substance. The book I was using had perhaps half a dozen illustrations in it. I finally said aloud to my wife, "Oh, I do wish that somebody would give us a Pilgrim's Progress full of pictures from beginning to end! I want a nice large book that would be full of attraction to every child, and with pictures of such a nature that they would encourage wholesome truth and Bible precepts, even to those who can't read." Well, now, it is a little funny, that, almost the very next day, the book I had been longing for was put into my hands. It is from the Charles Foster Publishing Co., Philadelphia, where the Story of the Bible comes from. The book is 9½ inches long, 7¼ wide, and 1¼ thick. It has 425 pages and 175 illustrations. Ever so many, to whom I have shown it, pronounce it a $2.00 or a $2.50 book; but by buying a very large number of them at a time we can sell them to you for only 75 cents. The book is so heavy, however, that it can not be sent by mail for less than 20 cents, making 95 cents by mail postpaid. The covers are most beautifully embellished in scarlet and gold, and many of the pictures are worth to me alone the price of the book. Among them I would mention Christian and Pliable in the Slough of Despond; Mr. Worldly Wiseman; Giant Despair, etc. But the sweetest and best of them all to me is Prudence talking to the boys. A single glance at the book by anybody, when you mention the insignificant price for so beautiful a volume, will make him hold up his hands in astonishment. We send a book as a premium for three subscriptions at $1.00 each; or send us $1.75 and we will send you GLEANINGS for a year, and the book postpaid. If you want something extra nice for a present, we can send you one with gilt edges for 25 cents more.



THE STORY OF THE BIBLE. This wonderful book is the production of Rev. Charles Foster, of Philadelphia, lately deceased. It is the whole Bible reproduced in simple language, making a book of 700 pages, illustrated with 274 engravings. It is so plainly and pleasantly written that grown people, as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. Indeed, it has proven so simple, reliable, and helpful, that it has been reprinted in many foreign languages. Over 400,000 volumes have been sold since it was first issued. It is a well-made book, printed on fine paper. Regular agent's price is $1.50. Our price is $1.00; 15 cents extra if sent by mail, or given free for 2 new names and one renewal, with $3.00, and 15c extra to pay postage.

STORY OF BIBLE ANIMALS. This is another book, same size and style as Story of the Bible—704 pages, 300 illustrations. It is a description of the habits and uses of every living creature mentioned in the Scriptures, with explanation of passages in the Old and New Testaments in which reference is made to them; by J. G. Wood, author of "Illustrated Natural History." If you are interested in natural history you will be delighted with this work. Children should read it to arouse their interest, and make them more familiar with the Book of books, by becoming more familiar with its animals. Regular agent's price, $1.50. Our price is $1.00. By mail, 15 cents extra, or given free for two new subscriptions and your own renewal, with $3.00, and 15 cts.

FABLES AND ALLEGORIES; or, New Lights on Old Paths. This is a most magnificent book by Chas. Foster, the author of the Story of the Bible. It measures 8 by 9½ inches, by 1⅝ inches thick, and weighs 4 lbs. It is printed on very heavy toned paper, with heavy gilt edges; is bound in light-blue cloth, embossed in black and gold; contains 512 pages and 312 original illustrations. The subject-matter is a series of fables and allegories, each giving a most wholesome moral lesson that very few of us, old or young, do not need. This book would be an ornament on the center-table in any home; and if read and pondered, and its lessons put into practice, many hearts would become more lovely, and many homes more pleasant and beautiful. The lessons taught are made much more pungent by the pictures accompanying, as in many cases the story is more than half told in the pictures. So large and nice-looking a book is rarely sold by agents for less than $4.00. Our price is $1.50. By mail, 32 cts. extra, or given for 6 subscriptions, with $6.00, and 32 cts. to pay postage, if sent by mail.

BIBLE PICTURES, and What They Teach Us. This is a very handsome book by the same author, Charles Foster. It contains 315 large illustrations from the Old and New Testaments, with brief descriptions. It contains 232 pages, 8x10, with embossed cloth cover, title in gilt, printed on heavy paper. The book weighs 2½ lbs., and takes 20 cents to mail it. It will make an excellent Christmas or birthday present for a child. It is written chiefly to instruct the children, and should be in every home. Regular agent's price, $1.50. Our price, $1.00. By mail, 20 cents extra, or given free for two new names and your own renewal for GLEANINGS, with $3.00, and 20 cts. to pay postage, if sent by mail.

FIRST STEPS FOR LITTLE FEET. This is by the same author, and is a collection of simple Bible stories intended more especially for younger learners. Every child should have one of these to read; 328 pages, and 140 illustrations. Very nicely printed, and bound in cloth, title in gilt. Price 50 cents each; 2 for 75 cts. Given free postpaid for 2 subscriptions.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE. This book should be in the hands of every one who desires to live a happy life, and who does not? It is so popular that over 50,000 have been sold since its publication a few years ago. We received from the publishers as many as 1250 in one shipment. This edition was revised and enlarged, so that the book now contains over 200 pages. Price, cloth bound, 50 cts. In paper, 25 cents. Postage extra, 8 cents for the cloth and 6 cents for paper bound. The cloth book given postpaid for 2 subscriptions, or the paper for one new subscription.

CONDENSED PRICE LIST.

NAME.	Postage on each.	Price of 1	2	3	5
Fables and Allegories, gilt edge	32	1 50	2 75	4 00	6 00
Story of the Bible...	15	1 00	1 75	2 50	3 75
Story of Bible Animals	15	1 00	1 75	2 50	3 75
Bible Pictures....................	20	1 00	1 75	2 50	3 75
Pilgrim's Progress, gilt edge....	20	1 00	1 75	2 50	3 75
" " plain edge	20	75	1 30	1 80	2 75
First Steps for Little Feet.......	6	50	75	1 10	1 75
Christian's Secret, in cloth......	8	50	85	1 20	1 80
" " in paper ...	6	25	45	60	90

Larger quantities quoted on application.

Five or more assorted books will be sold at the rate we charge for three of one kind, and three assorted at the rate for two of a kind.

A. I. ROOT, MEDINA, OHIO.

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HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—There is a slight falling off in demand, and prices are somewhat easier on comb honey, and we think the height of the season is about over. The demand for extracted, however, is improving, as large quantities are now being used by confectioners and manufacturers of cough syrups. We quote: Fancy white-clover, 14; medium, 12@13; mixed, 10@11. Buckwheat, 9@10. Extracted, 6@8.

CHAS. McCULLOCH & CO.,
Oct. 20. 393, 395, 397 Broadway, Albany, N. Y.

MINNEAPOLIS.—*Honey.*—Honey in this section of the country is very scarce; in fact, much more so than last year. Prices are ranging, for fancy white comb honey in 1-lb. sections, from 18@20; dark honey is slow sale at from 14@16. We think the demand will hold up, and the probabilities are that fancy honey will go much higher in the next 30 days.

J. A. SHEA & CO.,
Nov. 13. 14 &16 Hennepin Ave.,
Minneapolis, Minn.

NEW YORK.—*Honey.*—Demand for comb and extracted honey is not what it should be this time of the year. Trade is not healthy, and the only thing we can account for its being so is the abundance of fruit the past season, and the cheapness of sugar. We quote to-day as follows: Fancy white-clover, 1-lb., 14@15; 2-lb., 12. Fair white-clover, 1-lb., 12; 2-lb., 10; buckwheat, 1-lb., 10; 2-lb., 9. Extracted, clover, 7; buckwheat, 5¼. *Beeswax*, 26@28.

CHAS. ISRAEL & BROS.,
Nov. 20. New York.

CHICAGO.—*Honey.*—Good demand for fancy white honey in 1-lb. sections at 16c. Other grades white, 14@15. Extracted honey selling slow, owing to warm weather. Quote selling 6½@7½. *Beeswax*, light supply, good demand at 26@27.

S. T. FISH & CO.,
Nov. 20. 189 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Supply large. We quote: 1-lb. white, 15@16; 1-lb. dark, 12; extracted, white, 7@7½: dark, 5@6½. *Beeswax*, none on the market.

HAMBLIN & BEARSS,
Nov. 20. 514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—Honey remains quiet. Comb, 1-lb. white, 14@14½; 2-lb., 11. Extracted, light amber, Cal., 7@7¼; basswood, 7@7¼; buckwheat, 5¾@6¼; Southern, 65@75 per gallon. *Beeswax*, 26@27½.

F. G. STROHMEYER & CO.,
Nov. 20. New York.

CHICAGO.—*Honey.*—The demand for white comb honey is quite good, and sales are made at 16c, when in good order. Dark comb is slow, and sells in an uncertain way at 9@13. Extracted, 6@8, chiefly selling at 7.

R. A. BURNETT,
Nov. 19. 161 S. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—There is little of an encouraging nature to report in regard to the honey market. The trade is very quiet, and prices unchanged.

D. G. TUTT GRO. CO.,
Nov. 20. St. Louis, Mo.

PHILADELPHIA.—*Honey.*—Choice 1-lb., 15@16; medium 1-lb., 14. *Beeswax.*—Choice yellow, 25; medium, 23@24.

SHOEMAKER & SCHULTZ.,
Nov. 20. No. 30 S. Water St., Philadelphia, Pa.

PORTLAND.—*Honey.*—There has been one or two lots of honey offered here, but the Oregon bee-man wants more money than the dealer can pay. This market is entirely supplied with the California product. Another great misfortune with the Oregon farmer is, that he does not put his honey in a merchantable shape, and sends it into market in a broken condition. Prices are about as our last.

LEVY, SPIEGL & CO.,
Nov. 19. Portland, Oregon.

SAN FRANCISCO.—*Honey.*—Honey sells quite freely and stocks are getting reduced. We quote extracted honey, 5½@6½c; comb, 10@14c, according to quality. *Beeswax* scarce, and in good demand at 23@24c.

SCHACHT, LEMCKE & STEINER,
Nov. 11. San Francisco, Cal.

CINCINNATI.—*Honey.*—There is a good demand for extracted honey from jobbers and manufacturers. It brings 5@8c on arrival. Demand for comb honey is good at 12@16c for best white in a jobbing way. *Beeswax*, demand is fair at 23@25c for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Nov. 26. Cincinnati, O.

BOSTON.—*Honey.*—Our market is well supplied with honey. Selling from 14@16c for 1-lb. sections. Extracted, 7@8c. *Beeswax*, none on hand. Demand good.

BLAKE & RIPLEY,
Nov. 24. Boston, Mass.

KANSAS CITY.—*Honey.*—Receipts and demand are fair. 1-lb. white comb, 15@16; dark, 10@12. Extracted, white, 7@7½; dark, 5@9. *Beeswax*, receipts light, 23@26.

CLEMONS, MASON & CO.,
Nov. 20. Kansas City, Mo.

DETROIT.—*Honey.*—White comb honey is selling at 12@13; a very nice article would possibly bring 14. Extracted, 7@8. *Beeswax*, 25@26.

M. H. HUNT,
Nov. 21. Bell Branch, Mich.

FOR SALE.—Extracted honey, basswood, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us. 22-2db
S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE.—25,000 lbs. of buckwheat extracted honey, in 200, 350, and 500 lb. packages, f. o. b., at 6¼c.

W. L. COGGSHALL,
West Groton, Tompkins Co., N. Y.

FOR SALE.—Honey, in 3-lb. tin fruit-cans, at 25c per can—100 of these, and 50 7-lb. pails, at 50c per pail. This honey was gathered from alfalfa. Will mail sample if wished, or deliver honey boxed at above price at depot.

J. B. COLTON, Garden City, Kansas.

FOR SALE CHEAP.—10 bbls. extracted honey mixed with honey-dew. Quality good. Will sell in any quantity desired. Price on application. Sample sent for a two-cent stamp.

Will some of your subscribers please give me, through the columns of GLEANINGS, some information regarding the honey resources of the Piedmont region of Virginia, North Carolina, and Georgia? Which of these States do you consider the best for the production of honey? Does Virginia produce much white-clover or basswood honey? Would especially like information regarding that region of Virginia from Basic City and Charlottes, southwest along the Shenandoah Valley R. R., and the Virginia Midland R. R., also of Haralson Co., Ga., and adjoining counties. Any information you can give me will be thankfully received.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Barnes foot-power saw, has ⅛ inch cut-off saw, ⅛ in. rip, ¼ in. rip, ¼ in. cut off, ¼ in. miter, ¼ in. very thin for perforated zinc slots, all in first-class order, f. o. b., $25.00.

E. D. KEENEY, Arcade, N. Y.

FLORIDA ORANGES,

And here is where you can raise them.

AT 1-2 PRICE, in 5 and 10 acre lots, for cash or on long time, one-third of a 300-acre tract of one of the choicest pieces of natural orange land there is in the State, being Rich, Heavy, High, Gray Hammock; 2½ miles from railroad, healthy section, pure water, good roads, clear title. For particulars, address 23-24d

A. F. BROWN, HUNTINGTON, PUTNAM CO., FLA.

Please mention this paper.

EARLY QUEENS.

In March and April, from apiary in Texas, the choicest 5-banded stock, warranted purely mated. One, $1.25; 6 for $6.00.

BREEDING QUEENS.

$3.00 to $5.00 each. All orders filled promptly. Send your name NOW for full particulars. Safe arrival and *entire satisfaction guaranteed* or money refunded. Orders booked now, pay when you want the queens. 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

In writing to advertisers please mention this paper

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* **Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.** Circulars free. **Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.**

Please mention this paper.

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

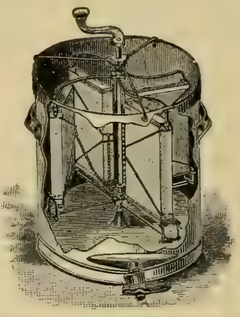
—MY NEW—

THIN DOUBLE-WALL HIVE

Is the best summer and winter hive yet devised. Takes regular "L" furniture. Is lighter than ⅝ single-wall hive; may be storified to any extent, etc., etc. Send for descriptive circular. Special low prices for 1891 to introduce it. A full line of bee-keepers' supplies always in stock. Catalogues free.

C. W. COSTELLOW, Waterboro, York Co., Me.

Please mention this paper. 15-19-23d



EVERY THING
USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB,
Pleasant Valley, N. Y.

CATALOG FREE

5tfdb Please mention this paper.

BEE-HIVES! SECTIONS!

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
HIGGINSVILLE, MO.

14tfdb

Please mention this paper.

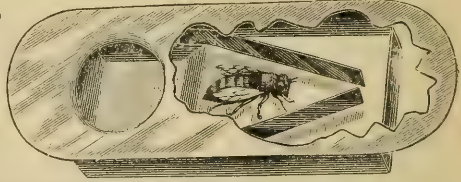
POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb ***R. & E. C. PORTER, LEWISTOWN, ILL.***

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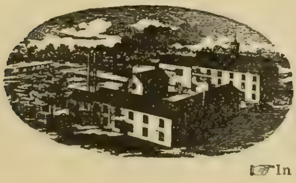

A glimpse of our Factory, now making carloads of **Dovetailed** Hives, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.

We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue**, 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XIX. DECEMBER 1, 1891. No. 23.

STRAY STRAWS

FROM DR. C. C. MILLER.

ON to Albany !

THE CHICAGO CONVENTION was a grand one.

THE MISSOURI STATE SOCIETY has 106 members. Pretty good for Missouri.

IN TRANSFERRING, is it really worth while to have wires in the frames at all?

"NEW BEGINNERS" are spoken of a great deal. When do they get to be *old* beginners?

ELECTRICITY, Henry K. Staley thinks (*A. B. J.*), should be used to turn extractors, and to announce the issuing of swarms.

COMPETITION with California honey is spoken of on page 878. Please, sir, Mr. Editor, why do you speak of that any more than competition with New York honey or Illinois honey? Why, bless you, California is part of *us*.

EMMA is trying an experiment. When I was away from home she fed one colony bug-juice only, to see how they would winter. I don't know which colony it was, and I have my suspicions as to her knowing any thing more about it than I do.

AFTER MY BEES were put in the cellar, it set in immediately for a long rainy spell, turning cold; and when, Nov. 17, the mercury stood 7° above zero, with a steady wind, it was no little comfort to think my bees had gone into the cellar dry and warm.

B. TAYLOR, in *Review*, pokes fun at me for taking a rope to carry bees into the cellar. All right, friend Taylor; you can take the hardest way if you want to, but not I. "No, sir; I am not going to plow my ground with a forked stick when I can"—do better.

NAPHTHALINE has a new use for bee-keepers. Dr. Rose, in *Central Blatt*, says it is a success in introducing queens and uniting colonies. Simply put a little naphthaline in each hive over night, and the next day there will be no trouble uniting. It smells horribly enough to unite any thing.

"I NOTICE," says Doolittle in *A. B. J.*, "that the advocates of natural swarming are increasing, and others diminishing, as the years go by." I don't know, but I doubt, I doubt. At any rate, I think he will agree with me that the number is on the increase, of those who would like to prevent *all* swarming.

IT'S COMICAL to read how Hutchinson took such exceeding pains in hauling a load of bees Nov. 1. He put *two empty supers* on top of each hive so they wouldn't smother for want of room. Why, bless your heart, W. Z., I haul mine every fall earlier than that, and never think of giving them extra room or any ventilation except the regular entrance.

"BROTHER" AND "FRIEND." G. W. Demaree, in *Missouri Bee-Keeper*, says he has "waited and hoped long to see less of this thing in our bee-periodicals. The terms are too sacred to see them profaned to utter disgust." And then the editor very innocently commences his footnote, "Well, Brother D." Evidently, Brother Quigley is incorrigible.

"A DEEP CLOSED-END FRAME is cold and bad," says B. Taylor, in *Review*, "just because it cuts the brood-chamber into many small rooms having no convenient connection with each other." I suppose he keeps the inside doors of his house all open so as to make the house warmer. Still, he makes a good point in saying that outside clusters caught away from the main cluster are easily chilled.

A COLONY of bees—what is it? The answering of this question raised some feeling at a fair, where a premium to "best colony" was awarded to a three-frame affair. The Missouri Bee-keepers' Association decides that a "colony of bees" is "a regular-sized hive, full of combs, bees, and a queen." But what is a "regular-sized hive"? And is the hive a part of the colony? What is a colony of bees, anyhow?

NAPHTHALINE is so strongly urged by the *B. B. J.* as a sure preventive (not a cure) of foul brood that I wonder we have no report of any one trying it in this country. In an apiary where the disease prevails, put some naphthaline in a sound colony, and see whether it remains healthy. If it proves effectual, it will prove a great help in eradicating the disease. It has at least the merit of great cheapness and simplicity of application.

SALT has been recommended for some of the ills that bee-flesh is heir to, and some are very earnest in the recommendation. Now, I don't know that salt ever cured a single sick bee; but I do know that bees seem quite eager for it, and that's some proof they need it, and I don't think any one has ever suggested that harm came from its use. So it seems a good plan to have a place specially prepared to salt the bees, and thus save them the trouble of frequenting filthy places to obtain it.

A CORRESPONDENT wants me to tell my experience with Punic bees. I think I have told all there is to tell. I got two virgin Punic queens by mail from England. The workers accompanying them were decidedly blacker than any black bees I had ever seen. One of them was fertilized, and her workers were nearly all three-banded. It was so late in the season that I couldn't judge of their working qualities; and, the queen being lost, they now have a queen whose workers are only one-fourth Punic, so I can't judge much next year.

J. H. LARRABEE is reported in *Review* as saying that "he shall experiment no more with planting for honey, and he should be very glad if bee-keepers would write and tell him what experiments they would like tried." Look here, friend L., try the experiment of getting out of your shell and letting us know what you are doing. We have lots of confidence in you, and are interested in your successes and your failures. Those government chaps will be just as well satisfied with your annual report if it has all been given beforehand in the bee-journals.

POLLEN AND LARVAL BEES.

BROOD FOOD; WHAT IS IT?

A correspondent writes, "Is that true, which scientists claim, that the young bee in the larval state does not eat pollen, but that its food consists of a purely animal secretion?"

Well, in the light looked at it by our correspondent I do not think it true, and I can not help thinking that they who thus argue are making a mistake; for, from the many careful observations regarding the food of larval bees, I have been led to believe that such food was composed of about two parts honey or saccharine matter, four parts pollen, or flour, when such is used in early spring as a substitute, and one part water, the whole being taken into the stomach of the bee and formed into chyme, after which it was given to the larval bees in the creamlike form as we see it in the cells.

Right here I wish to digress a little and give some further observations as bearing on the eating of pollen by the old bees. Sometimes old bees eat pollen for the purpose of bridging over a time of scarcity, and at others they do not, the same being conditioned on whether there is brood in the hive or not. One year my bees had hardly a cell of honey in their hives during the fore part of June, at which time of year we have a scarcity of honey, but always plenty of pollen. By way of experiment I fed a part of my colonies, and let the rest go without feeding, to see if the bees in those hives having scarcely a cell of honey in them, but plenty of brood in all stages, would live if provided with pollen, which was given in abundance. As the weather at that time was so unfavorable that the bees did not fly for several days, I anxiously watched them to see what they would do as soon as the few cells of honey were gone. The first thing noted was, that, as soon as all the honey was gone, the larvæ were scrimped of food, and the eggs were removed from the cells (probably eaten by the bees, as I have seen bees eat eggs dropped by the queen), while, during the next day, there was a general eating of the larvæ. The next day after, the sealed drone brood was taken from the cells and sucked dry, while the harder parts were scattered about the entrance and bottom-board of the hive. At this time I noticed the bees putting their tongues together as they do when young bees take a load of nectar from the field-bees in time of plenty, which thing was continued till nearly all of the pollen was used up in the hive, which lasted for several days, when it came good weather again so new supplies were gathered. Since then I have noticed the same thing several times under like circumstances, but always when there was brood in the hive. Remembering these facts I tried the same experiment in the fall when there was no brood in the hive, at two different times, but in each case I succeeded in starving the colonies with not a cell of pollen touched, so far as I could discover.

From these observations and experiments I have formed the opinion that old bees partake of pollen only in the form of chyme, and that this chyme is prepared only when there is or has been brood lately in the hive. But, to return:

That the larval bee subsists wholly on this creamy food, or chyme, I think no one will deny; and if, from my personal observations, I am correct, the largest element in the food is pollen. As the larva absorbs this food, the grosser part of the pollen forms into the yellow streak seen in all larvæ when taken out of the comb, but most plainly in the drone larva; which streak is finally inclosed by the intestines of the newly hatched bee, and evacuated on its first flight. To show that I am not alone in the belief that pollen enters largely into the food of the larval bee, I wish to give the testimony of others who incline to a like belief. Gundelach says:

"The larva is immediately fed by the workers with a pellucid jelly prepared in the chyle-stomachs by the digestion of honey and pollen mixed with water."

Neighbour says:

"A portion of this pollen is taken at once by the 'nursing bees,' which are supposed to subject it to some change before offering it to the larvæ."

Kirby says:

"With this pollen, after it has undergone a conversion into a sort of whitish jelly by being received into the bee's stomach, where it is mixed with honey and regurgitated, the young brood, immediately upon their exclusion, and until their change into nymphs, are diligently fed by other bees, which anxiously attend them, and several times a day afford a fresh supply."

Gallup says:

"Every bee-keeper ought to know that bees do not feed pollen directly to their young; but it is elaborated in the stomach of the bees into chyme to feed the young on."

Quinby says:

"How this food is prepared is mere conjecture. The supposition is, that it is chiefly composed of pollen. This is strongly indicated by the quantity which accumulates in colonies that lose their queens and rear no brood."

Prof. Cook says:

"The food is composed of pollen and honey—certainly of pollen, for, as I have repeatedly proven, without pollen no brood will be reared." Again, "The function of bee-bread is to help furnish the brood with proper food. In fact, brood-rearing would be impossible without it."

A. I. Root says:

"It is supposed that this larval food is pollen and honey, partially digested by the 'nursing bees.' Bees of this age, or a little older, supply the royal jelly for the queen-cells, which is the same, I think, as the food given to the very small larva. Just before the larvæ of the worker bees and drones are sealed up, they are fed on a coarser and less perfectly digested mixture of honey and pollen."

In the above all agree that pollen enters largely into the food of the larval bee, and I think that it must be conclusive to the reader that this is right. Facts are what we want; and if any of our scientific brethren can give facts to overcome this testimony, we should be pleased to hear from them. G. M. DOOLITTLE.

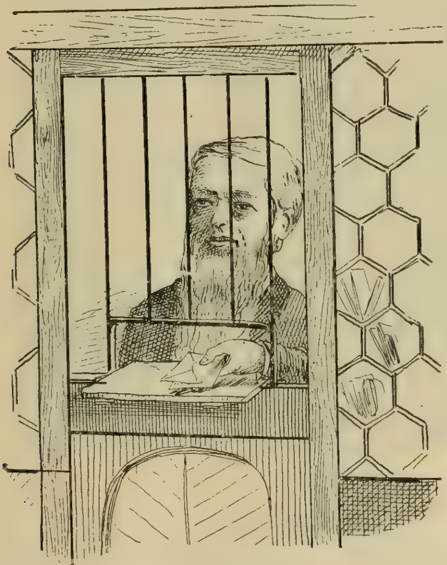
Borodino, N. Y., Nov. 16.

[We are a little surprised that you did not quote from Cheshire and Cowan. The former insists that royal jelly is a *secretion* from one of the glands, and not a product of the chyle-stomach. Mr. Cowan, as well as Prof. Cook, with a long array of good authority to sustain them, hold that this food is produced in the chyle-stomach, and that the worker larvæ are fed on this concentrated food for three days, after which they are weaned and given a coarser food. For further particulars in regard to these views, see Cheshire, Vol. I., page 81, and Cowan on the Honey-bee, page 121. After carefully reading and weighing the arguments of both, we favor the view that royal jelly is the product of the chyle-stomach—that is, a mixture of honey, pollen, and water, digested in the stomach of young worker bees, and, by them after regurgitation, dispensed to the larvæ.]

RAMBLE NO. 48.

WITH DR. MASON AND E. E. HASTY.

From Medina I proposed to go to Michigan. In looking up the best way with E. R. Root he advised the Toledo route and a call upon Dr. A. B. Mason. The advice struck the Rambler as eminently agreeable, and a few hours afterward found me inspecting the streets of the lively city of Toledo. Auburndale is a suburb of the city, and readily reached by street-car. This little town has long been known the country over as Wagonworks. This is a very common and homely name, and very suggestive as to how and why the place was founded, the wagon-business having grown to immense proportions, and having drawn much other business to its side. The inhabitants have become very refined and poetical. They could no longer endure the idea that a cart was the foundation of all their prosperity, and the name has therefore been changed to Auburndale.



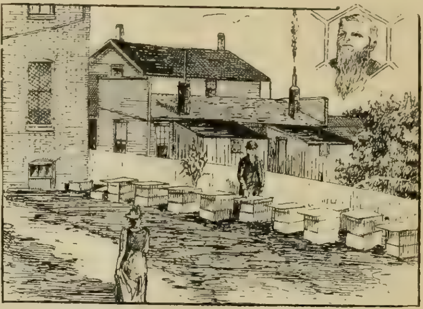
DR. MASON BEHIND THE BARS OF A HEXAGON POSTOFFICE.

If an old resident is asked the name of the town he will unthinkingly commence with a loud coarse Wa—; but the sound warns him, and, giving his lips a poetical twist, he says in a subdued tone, "This is Auburndale." It is evident that this place will soon be absorbed by the rapid growth of Toledo, and then Auburndale too will have to go.

Dr. Mason is at present serving his country by regulating the Auburndale postoffice at a salary almost any bee-keeper would be willing to receive. I found him, at the time of my call, a close prisoner to his duties. I stepped into the office, and, putting my nose up to the delivery window, says I, "Is there any mail here for John Doe or Richard Roe?"

He gave a brief look at the nose, and said, "Come around, Mr. Rambler, and sit down."

As this was our first meeting it is an enigma to the Rambler to know how Dr. Mason so quickly recognized me. I spent a very pleasant afternoon in the postoffice. Dr. M. was busy a good share of the time, dispensing mail, knowledge, and jokes to his numerous callers. He seemed to be on the best of terms with every man, woman, and child, and especially the girls, and they all went away well pleased and smiling, and some smiled till they crossed the street, whether they received any mail or not. Dr. M. had quite a trade in miscellaneous letters, or to those who had no box. He would carefully look over the pile under the letter called for every time.



DR. MASON'S APIARY.

"Why," Dr. M., said I, "that's the eleventh time you have looked that pile over, and you knew that man had no letter. Why didn't you tell him so, and let him go about his business?"

"But," said he, "that would not satisfy the man. He sees me shuffle the letters over, and goes away perfectly satisfied; whereas if I had merely said 'No letter,' the fellow would have gone off muttering hard things against the government. The honor of this great nation has to be defended. Her flag must not trail in the dust; so I make it my duty to send everybody away feeling happy toward Uncle Sam."

Any person would readily observe that a bee-keeper was running this office, for the boxes are all put in hexagonally, as will be seen. The advantage, as explained by the doctor, is, that the letters can not get down flat, and are always in sight, and easily grasped and delivered; so "hexagony" is not only a fine thing for an apiary but also for the government.

At the time of my call, Dr. Mason was confined to his duties with unusual severity. His son, who is deputy, was east on a vacation trip; and from early morn until late at night the doctor was at his post, relieved occasionally by his wife and daughter, and a lunch-basket, of which we all partook more or less. Dr. M. has a very pleasant home in the suburbs of Wa—Auburndale, and in the rear we found his apiary, the lawn surrounding them being very smooth and pretty. Dr. M. has reduced his number of colonies, and is not making honey production so much of a specialty as formerly.

In the early morning, after witnessing the doctor milk his Jersey cow, the camera was brought to bear on the apiary and Dr. M., and I give you the result. He appears to be perfectly at home in the midst of his portico L. hives. That morning he said, "You must go out and see Mr. Hasty, who lives only a few miles away."

The doctor's postoffice duties prevented his taking the outing; but a way was provided by Miss Mason becoming the driver. Besides her various other accomplishments, Miss M. is an expert horse-driver, and we were soon getting over the road at a lively gait behind the Mason horse in the Mason carriage, and beside the Mason girl. The half-dozen miles were covered in what seemed a very short time.

Mr. Hasty was at home and in his apiary, and I found him picking strawberries. His apiary differed somewhat from other apiaries I had visited. The hives were shaded with clumps of asparagus. It makes an excellent shade, but requires much trimming, and gives the apiary a dressy appearance. The ground is kept free from weeds, and the hives seemed, from external appearances, to be of various patterns, but I believe they all take the L. frame. At one side I noticed several holes with covers. In these Mr. H. suspends swarms that have issued and clustered. If another swarm issues and is about to cluster upon No. 1, No. 1 is promptly cut down and put into the hole in the ground, the cover put down, and it remains in darkness until the apiarist finds time to attend to it. Several of these holes are provided, showing that much natural swarming is indulged in in the Hasty apiary. The apiary shows that experiments are often tried, and I have no doubt that bee-keepers would be much instructed if Mr. H. would give the results to the public. The camera was brought to bear upon the apiary from various points, but a good photo of the whole hundred hives did not materialize. Our photo shows about half of the apiary with Bro. Hasty arranging a ladder (Hasty's, not Jacob's), from which the Rambler tried to get a photo. Our photo gives you an idea, however, of the beauties of the place. Around the apiary and the house are many noble shade-trees, and, taking it all together, it is a desirable place in which to live. Mr. H. lives in single blessedness with an aged mother and his brethren. He conducts his apiary, not for the dollars supremely, but as a means of serving God, believing, with Paul, that all things should be done with that end in view. Mr. H. has been an active Christian worker, maintaining a Sunday-school and other services in his neighborhood for a long time; but, his health failing, the services are at present not held. I felt that a longer conversation would have been both pleasant and profitable; but the waning hours demanded haste, and we were soon again in Toledo.

APIARY OF E. E. HASTY, RICHARDS, OHIO.

After leaving all of these good friends, reflections reminded me that in Dr. Mason we have a man who has done much for the bee-keeping fraternity, not only in Ohio, but in the whole country. His greatest field of usefulness is, perhaps, now before him as our leader at the World's Fair; and that there is so much unanimity over his selection, again rejoices the heart of the RAMBLER.

[Not all of our readers have seen Dr. Mason, and consequently can not know how natural the picture of him is, even if "behind the bars." Rambler and our artist seem to have a knack of getting things and persons pretty nearly as they are. The picture of Mr. Hasty's apiary is made directly from the Hawkeye photo. We had supposed, until recently, that our friend kept only a few colonies—only just enough for experimental purposes; but we are agreeably pleased to learn that he has 100. Mr. Hasty is a remarkably bright writer. He is a keen observer in the apiary, and knows pretty well whereof he speaks. We wish he might let his apicultural light shine a little more.]

MOVING BEES HOME.

HOW MUCH VENTILATION IS NEEDED.

October 10th I began to move my bees home again. We moved three loads with eighteen hives to the load. In the first place I was very busy with other work, and got started too late in the day. It was nearly sundown when we arrived at the lake where the bees were. As all of the bees were in large Dadant hives that I intended to move that night, and as the night was cool, and all of the Dadant hives have a little ventilation in the roof to allow the moisture to escape, I took no ventilators along. I was satisfied that there was enough ventilation in the roof. The surplus cases were all left in their places. Some of the cases had honey in, and others did not. As we came right by the scales, we weighed our loads. The first load weighed, gross, 3650; wagon, 1410; net, 2240 lbs. Second load, 3490; wagon, 1280; net, 2210. Third load, 3495; wagon, 1300; net, 2195. We had our wagons loaded, and got started away from the lake about 8 P. M. We reached home at about 10:30, and found a nice hot supper ready for us. After eating we had four miles further to go, as I wanted this lot at the Ballinger apiary. Some of these hives leaked bees. I find that, if bees get out of the hives at night, and the hives are moved, some bees are very likely to get on to any one handling them. Then they begin to crawl and sing; and there is nothing that will make a man nervous so quickly as to hear a bee or two singing somewhere on his clothing, especially if they can get under his clothing. I take particular pains to see that my help are properly dressed for the occasion. First, each of them needs a pair of old cotton socks with the toe of the sock cut off so as to allow the four fingers to slip through. A hole is cut into the side of the foot of the sock for the thumb, so that the heel of the sock will come over the back of the wrist. The leg of the sock is to be drawn over the sleeve of the coat. Now a pair of buckskin gloves can be drawn over the socks on the hands. This fixes the hands and sleeves. A cloth or a large handkerchief is folded and wrapped around the neck to keep the bees away from the neck, and from getting under the veil. The shirt-collar should be turned up before putting the cloth around the neck. The opening in the shirt front should be so secured that no bee can get through. The opening in the pants legs should be put inside of the boots, or otherwise secured. A man so dressed will handle the hives, no matter how badly they leak, with impunity.

After loading, take the horse-blankets and spread them over the front of the front hives. If it is a dark night, a lantern should be hung under each wagon. I have tried it. Though we had nice moonlight nights this fall, we unloaded our hives and got back home at about 4 A. M.

Wednesday night, Oct. 14th, we made our second trip. This trip we made to the Hamilton yard, which is about three and a half miles east of where I live; and as we did not go by the scales I did not weigh them. Part of these hives were eight-frame Simplicity, two stories high, and had telescope roofs on them. I sent a couple of men down early in the day to nail them up and have the bees all ready by the time we would get there with the wagons. Through a misunderstanding they took no ventilators; and when I got there about 30 Simplicity hives were nailed up without any ventilation whatever, except what little could get through the cracks at the entrance and at the roof. These were all strong hives. Now, what was I to do —open all of these hives and go home with an empty wagon and another only partly loaded, or run the risk of smothering a lot of bees? Another thing, my teams had all the work they ought to do outside of hauling bees all night. I immediately made up my mind to risk it as the night was frosty. I drove the lead team myself, and, to save a long drive, I went over a road that I had not been over for some time. In one place I got off the road about a quarter of a mile, and had to turn around and hunt up the right one. We got these bees off the wagon, and got home at about 2:30 A. M. Closing up these bees without any ventilation did not hurt any of them a particle, and we hauled them over eight miles on a straw-rack with no springs under them.

My conclusion is this: If bees are kept cool they need but very little air, though they are closed up tight and thumped around with impunity. It is the heat that kills them, and not vitiated air. As we moved 58 hives to the Hamilton yard I had only 20 hives left at the upper yard at the lake, and a lot of supplies, so that Friday night, the 16th, I took only two wagons, and took the bees and supplies to my home yard. We got home this time by 9:30. This left 63 hives at the lower yard to come to the home apiary, which was about a mile and a half lower down the lake. As I believe I have found out as good a way as there is to load bees on a wagon, I will describe it.

The side rails of the rack are 8 inches high. Across these, four cross-pieces are laid; on top of these, a floor of inch stuff is laid, and slightly nailed to prevent slipping out of place. The hives are set on this floor, with the entrance of the hive toward the outside of the wagon, and the back of the hive to the center of the wagon, and to the back of another hive with its entrance on the other side of the wagon. A rope is fastened on one side of a wagon, and brought around the back end of the wagon, and fastened loosely on the other side. Then it is raised into place near the top of the two back hives; then with a stout stick I twist the rope tight and tie the end of the stick to the rope. Now place a six-inch fence-board, 16 feet long, on the alighting-boards, on each side of the wagon; now pass a rope over the side rails of the rack under the floor the hives sit on; fasten each end of the rope to one of these fence-boards, near the center of the board, so that the rope will pull down between two hives. Now with another stick twist this rope up tight, and tie the end of your stick, and your load is secure.

Saturday night, the 17th, we made our last trip for the 63 hives. As one of my horses had got hurt I had to put my buggy horse into one of the teams; and as we had on a little too much for him, and a new driver, he got stuck with his load. I promptly unhitched him and put on one of the heavy teams to pull his load up. The first load had on 26 hives, a driver, and a man to help see that nothing lost off the load, as there were several empty cases and a water-barrel. It weighed, gross, with both men on, 4150 lbs. As we had had a little rain during the day, this wagon weighed 1495. With the drivers off, this load weighed 3850 lbs., or a net of 2355. The next load had on 3680 lbs., and the wagon weighed 1490 lbs., or a net of 2190. The third load weighed 3750, but I did not get the weight of the wagon. We got home about 11 P. M., and got our loads off by 12:30. All of them, except one or two hives that had been disturbed by some unknown parties, got home in good order with more than enough honey to winter on, and carry those through the winter that had not been to the lake. A. N. Draper.

Upper Alton, Ill., Nov. 18.

[Well, now, friend Draper, your loads are not so very much lighter than our last load of Shane bees, that you criticised as being too heavy for two horses; nay, rather, they are heavier. After all, I do not suppose that you overloaded your horses. It is evident that you are in the habit of looking ahead, as well as we folks at Medina.

Your experiments go to show pretty well that bees need very little ventilation when hauling, *provided* it is cool enough. This explains why it was not necessary for us to put on the screen tops, and why our 57 hives of bees, with only entrance-screens, were hauled home at night, without a bee smothering. In hauling bees home for the winter, rather than take off the covers and put on the wire-cloth screen tops, it is cheaper to select a cool day (or else a moonlight night), when all that is necessary at most is to put on only entrance-screens.]

COVERING PACKAGES OF COMB HONEY.

J. T. RIPLEY, OF THE WESTERN CLASSIFICATION COMMITTEE, INTERVIEWED BY A BEE-KEEPER—ANOTHER CONCESSION.

Having had quite a good deal of experience in shipping comb honey, I have been much interested in the discusssion in Gleanings in regard to crating or boxing it for shipment. I went up to No. 733 Rookery Building to interview Mr. J. T. Ripley, Chairman of the Western Classification Committee, on the subject. I represented that bee-keepers in general considered this a vital matter, this having a small amount of glass in a comb-honey crate so freight-handlers can see that comb honey is in the package. I explained that, as comb honey is always shipped at owner's risk of breakage and leakage (O. R. B. or L.), we as bee-keepers preferred to run the risk of the glass being broken rather than risk the contents of the package when said contents are unseen by the freight-men. Mr. Ripley explained that the reason they ruled that glass must be covered, was, that the companies are nearly always held responsible when any outside glass in a package is broken, but not for the breakage of the contents of the box or crate. However, Mr. Ripley said he wished to treat the honey-producers in as liberal a manner as possible, and he would make a ruling that a small piece of glass might be visible in packakes of comb honey; but he would have to insist on the (O. R. B. or L.) clause in the transportation contract.

I think some of the readers of Gleanings have thought Mr. Ripley's jurisdiction extended east of Chicago as well as west. The fact is, the Official Class Committee—C. E. Gill, chairman—143 Liberty St., New York, has control of rulings and classifications east of Chicago, and Mr. Ripley's committee only west; so, as I understand the decision, "comb honey in boxes crated with a small portion of glass exposed" will be received.

The writer thanked Mr. Ripley in behalf of the bee-keepers for his kindness, and for the courtesy shown them in these negotiations, and extended a hearty invitation to him to attend the meeting of the N. W. B. K. Association in Chicago, Nov. 19 and 20.

Chicago, Ill., Nov. 5. Herman F. Moore.

[Yes, we have been well pleased in the way we have been treated by Mr. Ripley. In the back numbers of the current volume it will be seen that he has endeavored to be fair and liberal with bee-keepers. We are very glad that you invited him to attend the meeting of the Northwestern Association, as we are sure he will be welcomed by its members at their next convention. It is a big thing to be on the right side of railroad officials; and it is not a pleasant thing to be on t'other side of 'em. Hello! here is something more on the same subject. It must be *two* have had their fingers in the pie. If so we are under obligations to *both* the parties.]

COMB HONEY; HOW TO CRATE IT.

A RECENT RULING BY WHICH BEE-KEEPERS ARE FAVORED AGAIN BY MR. RIPLEY.

Friend Root:—You will see from the inclosed correspondence that I have secured from the Western Classification Committee a ruling allowing comb honey in glassed cases to be shipped in crates. I called on J. H. Ripley three times in relation to the matter, and finally, at his request, laid the facts in the case before the committee in writing, having previously sent Mr. R. one of my crates filled ready for shipment. The ruling takes immediate effect. The crate I use is made, with the exception of ends, almost entirely of lath, which work up without waste in crating small single-tier cases. A crate that will hold a hundred pounds costs only about 15 cents, at the outside. If you think it worth while, you are at liberty to make use of the correspondence for publication.

Byron Walker.

Glen Haven, Wis., Nov. 10.

We take pleasure in reproducing the correspondence.

Mr. J. H. Ripley:—Agreeable to request I write you in relation to a recent ruling of the committee of which you are chairman, requiring comb honey in cases with glass fronts to be boxed where received for shipment. I have delivered to you one of my small crates of honey as prepared for shipment, and wish to call your attention to several reasons, suggested by my experience, why such crates are preferable to boxes for the safe carriage of these goods.

1. Comb honey in glassed cases *always* has the glassed side or sides parallel with the comb surfaces.

2. The attachment of the combs to the small sections that fill the case are *always* of such a nature that a comparatively slight jar in a direction at right angles to these comb surfaces will cause the combs to break loose from these attachments. Hence the necessity of these goods being at all times so handled as to forbid *such* jarring.

3. The only way of readily showing the direction of the combs in a package of honey offered for shipment is to make use of a strip of glass. Now, while it is admitted that it is desirable to have the glass protected, I venture to say that, even where the glass is fully exposed in such packages, not one glass is broken where a hundred combs are broken in handling as freight. It is a matter of common remark among honey-shippers, that nearly all the cases of breakage of combs occur where no glass is used.

4. The protection of the glass (see the sample crate) can be practically secured, and still the direction of the combs (which, I repeat, is always parallel with the glass) can be seen at a glance. But it is suggested that a caution-mark on the top of boxed packages is all that is required to secure the right handling of these goods; but there is abundant proof that this is not the case. Inability to obtain suitable boxes in the country often leads to the use of old soap and other store boxes, upon which it is difficult to make a caution-mark conspicuous; and such packages are very apt to be roughly handled before the nature of the contents is noticed. Again, it is a matter of common occurrence, as every shipper knows, for truckmen, in spite of the caution, "This Side Up," to turn boxes down on the side, trundle them across rough places (for instance, the bridge between the platform and car), and carelessly dump them. If any attention in such cases is paid to the caution-mark, the box is only *left* not *kept* right side up. Boxes of honey treated in this way are, of necessity, well nigh ruined.

5. In order to secure the safe carriage of these goods it is absolutely necessary, for the reason already given (the second one), that the packages be *loaded* on the cars so that the combs run parallel with the track; but it is evident that this can not be readily done, as the combs are as often parallel with the ends as sides of cases, unless a glass is visible, when a glance shows how they should be loaded.

Now, then, if I am correct in making the above statements (and, indeed, it is not with me simply a matter of opinion, but rather of knowledge gained by seventeen years of costly experience in shipping these goods), I submit whether the rule you have adopted in this case is either a just or expedient one. While you require the shipper to send his goods at O. R., you at the same time compel him to pack them in such packages as will well nigh insure their destruction. If this has not been the result in many instances already, it is either a matter of pure luck or else because of the negligence of railway employes in enforcing the rule in question.

These being the facts in the case, I can not believe that, when your committee fully understands the same, the rule will be allowed to stand, even for an hour.

As this is the season of the year when the chief part of the honey crop is marketed, an immediate change would be a great favor to the bee-keepers of the West, especially as the risk of shipping, where refrigerators are not available, is more than doubled with freezing weather.

Allow me to suggest that, if the rule were amended so as to forbid the shipment of honey in cases not glassed (except in car lots), and requiring the glassed cases to be crated so as to protect yet not entirely conceal the glass and packages to be provided with suitable caution-marks, the change ought to be satisfactory to all concerned, and would result in saving railroad companies not a little annoyance and expense, especially if their employes, having charge of such goods, were to understand that they would be held responsible for right handling when offered for shipment in proper shape.

If your committee should see fit to decide that these goods should not be received for shipment, unless packed in straw or other suitable material, shippers would have no cause for complaint. If the change herein suggested is adopted, I will hereafter make use of very conspicuous caution-labels reading about as follows:

"CAUTION!

"This package contains comb honey, and must be kept *constantly this side up* without jolting, or the contents will be ruined. Load with *glassed side* toward side of cars or the goods will be smashed."

I do not claim it is impossible to improve the crate submitted for your inspection. Of course, the thickness and width of the slats protecting the glass correspond with the size of the package and width of glass used, respectively. We have shipped honey in these crates from Michigan to the seaboard, and north as far as St. Paul, and have yet to hear of the first instance of loss in the past four years. BYRON WALKER.

Glen Haven, Wis., Nov. 10.

Mr. Ripley replies:

THE WESTERN CLASSIFICATION COMMITTEE.

"The Rookery," Room 733.

J. T. RIPLEY, Chairman.

HONEY IN BOXES.

Chicago, Ill., Nov. 3.

Mr. Walker:—Answering your favor of the 2d inst., since inspecting your sample package I have decided to allow first class upon the same, as will appear from a copy of rulings inclosed, which I presume will be satisfactory.

J. T. RIPLEY.

WHITE CHILEAN CLOVER.

IS IT THE SAME THING AS OUR MELILOTUS ALBA, OR SWEET CLOVER?

A correspondent sends us the following clipping from the Greensborough, Ala., *News:*

> Twenty-five years or more ago a pretty little emigrant came from South America to Alabama. The little emigrant first found standing-room on one of the plantations of Hale County, just above the county-seat, Greensborough. Not much attention was paid the little stranger, for the pretty one had found, in truth, merely standing-ground—not a spreading-place for it came from a lime-soil country, and now it found itself in a sandy region, and wasn't overmuch pleased with the change. The little emigrant is called the melilotus, or white Chilean clover. It is by far the best forage plant known to the farming world. It is, as its name indicates, one of the clover family, but one that has certainly outgrown all its kith and kin; for in the lime land that it loves it has been known to reach the height of ten or twelve feet. Its fibers, even when it reaches this great height, are always most nourishing to stock, are never too rough or coarse to be eaten readily and with great enjoyment by the pasturing herds. Often, when corn is scarce and high-priced, this supplemental crop feeds the workhorse and keeps up, as no other pasturage or hay will, the full strength of the animals. For pasturage for milch it is invaluable, producing a great flow of milk, and giving to the products of the dairy, so say some planters, a most pleasant taste, a sort of reproduction of the plant's perfume. The perfume of the growth is delicious, an odor of vanilla. The dry hot winds of summer that blow over our Alabama prairies carry the delicious odors far afield, and even more delightful is the perfume when beaten from the snowy blooms by one of our swift-falling, pelting summer rains. The pasturage taste for the plant is an acquired taste with stock, but the hay is eaten greedily from the first mouthful. The yield of hay to the acre is immense, for the plant will bear several cuttings a season. The most marvelous work of the plant is its renewal of worn lime lands. It is itself fertilization entire for the barest of "baldhead" that will crop out on otherwise rich lime lands. Right up from these spots, white as dry bones, the plant springs to its fullest height. Its roots are as long and as strong as its stems, and have soon netted the bald earth beneath with a thousand full roots and rootlets. The growth being biennial, these roots die every two years, and these leave in the ground an amount of dying vegetable matter. Besides this, the plant full-leaved, vigorous, giving shade to the earth abundantly, has

drawn into the lime lands just the air fertilization that they need. Many of our planters, who only within the last few years have learned the truth of this growth, plant every year, or every two years, acres of this clover. They leave the acres to its work of fertilization for two years, perhaps four years, and their corn lands have in that time become wholly renovated. But when I say leave the acres to its work of fertilization, I ought to say that in all that time he pastures herds and stock thereon. In the second year's growth he even gives to the acres several close cuttings for hay, leaving only a long enough growing season in late summer for the plant to sow its own seed. If he chooses he has also the most magnificent pasturage possible for bees, for no honey made the world over is purer or more delicately flavored than is the honey made from these white flowers. Since the value of the plant is beginning, merely beginning, to be known to the agricultural world, there has sprung up in this county where it grows so luxuriantly a new industry—seed-gathering. Demands for the seed come in from all parts of the Union. Some of the leading seedsmen of Texas seem to be taking an especially great interest in the industry, recognizing, as one must, the great value of the plant to the agricultural world. Eli Shepperd.

[Now the question is, Is the clover described above the same thing as our well-known sweet clover? From the fact that the writer calls it "melilotus," and says it is a white clover, it would seem that it must be; for our common sweet clover—that is, the white variety—is *Melilotus alba*. And, again, he speaks of the fact that the plant performs the office of renovating and making fertile the lime lands of Alabama, and this just exactly agrees with the way in which sweet clover grows on the alkaline lands around Salt Lake City, Utah; and, finally, it fits sterile ground for farming purposes. The description of the honey obtained from it also agrees. We should be glad to hear something more in regard to this matter from our correspondents in the Southern States.

THE NORTH AMERICAN AT ALBANY.

WHAT IT IS TO BE, AND WHO WILL BE PRESENT.

By Ernest R. Root.

Never, since we can remember, have the prospects been brighter for a grand representative international convention than for the one which is to be held at Albany Dec. 8–11. Representative—that is just what this meeting is to be, emphatically. Delegates from affiliated societies from all parts of the United States and Canada have signified their intention of being present; and, besides this, we believe there was never a convention where there was a promise of the attendance of so many distinguished, practical, and brilliant bee-keepers. The one great difficulty in securing a good attendance has been a failure to get reduced railroad rates. But this year the committee, G. H. Knickerbocker, succeeded admirably, so that nearly every one who expects to be present will be able to secure one and a third fare, round trip. For particulars, see elsewhere. Whether it is the reduced rates or whether it is due to the earnest solicitation on the part of the officers, we can not say; but up to the present date we are authorized to announce that the following bee-keepers will be present. Among them are some of the most extensive and distinguished apiarists in the world:

Capt. J. E. Hetherington, of New York; Frank Benton, of Washington, D. C.; Julius Hoffman, of New York; J. E. Crane, of Vermont; Pres. Elwood, of New York; Sec. C. P. Dadant, of Illinois; Vice-President Secor, of Iowa; Dr. C. C. Miller, of Illinois; Dr. A. B. Mason, of Ohio; W. F. Clarke, of Canada; G. M. Doolittle, of New York; A. E. Manum, of Vermont; Hon. J. M. Hambaugh, of Illinois; W. Z. Hutchinson, of Michigan; S. Corneil, of Canada; R. F. Holtermann, of Canada; Geo. H. Knickerbocker, of New York; C. H. Greeley, of Maine; Jonathan Pike, of Maine; J. H. M. Cook, of New York City; W. H. Norton, of Maine; V. V. Blackmer, of Vermont; E. R. Root, of Ohio; Geo. H. Ashby, of New York; J. Vandervort, of Pennsylvania; E. L. Pratt, of Massachusetts; A. N. Draper, of Illinois; A. A. Byard, of New Hampshire; H. Reynolds, New Hampshire; Frank and Chester Olmstead, of New York.

This is by no means the total number that will be present. Many others hope to be present, and doubtless will be, to say nothing of the large local attendance that will be sure to come to see and hear the "big guns." The bee-keeper who can attend, but fails to do so, will miss the opportunity of a lifetime to see together so many eminent men of our chosen pursuit.

The president and secretary—well, you know who they are. Mr. Elwood has some 1300 or 1400 colonies distributed in ten or twelve apiaries, all on closed-end Quinby frames. He is a practical and successful bee-keeper—a scholarly gentleman of a quiet and dignified reserve, rather modest and retiring in his way. He makes a good presiding officer, however, and has a happy faculty of turning all discussions into a practical vein, and holding them there.

The secretary, Mr. Dadant, is also another extensive bee-keeper, as well as a representative of the largest foundation establishment in the world. The Dadants own some 400 or 500 colonies, distributed in four or five out-apiaries. The secretary is a hustler and thorough-going business man and practical bee-keeper.

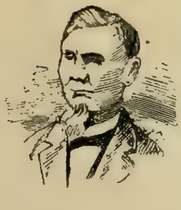
PRESIDENT ELWOOD.

York State, outside of California, is the largest honey State in the Union, and its capital is right in the midst of the honey-producers.

Albany is rather pleasantly situated, and easy of access. The convention will be held in Agricultural Hall, in a large and commodious room. Suspended from the ceiling above is the mammoth skeleton of a whale, and on all sides are the implements of agriculture.

The headquarters will be at the Globe Hotel, a two-dollar temperance house. Mr. Thomas Pierce, president of the Albany County Bee-keepers' Association, will be at the hotel to give all the information that may be desired in reference to cheaper or other accommodations for bee-keepers who attend. That you may be able to recognize him we would remark that he is over six feet tall, perhaps sixty years old, and genial and affable. We submit his picture herewith. When you see this man just say, "How do you do, Mr. Pierce?" He will give you all the information you may desire.

SECRETARY DADANT.



THOMAS PIERCE.

Come to the convention if you possibly can, and bring along the good woman who has toiled along with you in life's journey. If you haven't any "better half," bring along the one that *is to be*. We always have better conventions when there is a large attendance of ladies.

SOME WISE AND HELPFUL WORDS IN REGARD TO THE FAMILY PHYSICIAN.

NATURE AND ART.

Mr. Root:—I was glad to see you stand by the family physician in your footnotes to the letter of "Droit et Avant," in Nov. 1st journal, though the caution of the latter against the use of sleep-producing drugs is, I dare say, well timed.

I have heard the "medicos" maligned by people—I make no reference here to your correspondent above—who, after all, had they reflected a little, would surely have found that, in the past, they had reason to be exceedingly thankful that the medical profession existed, and that some one skilled in the healing art had been at hand with the advice which was invaluable when the life of a wife or child or other dear one hung in the balance. How little thought was there then of belittling the profession of medicine! It reminds me of those who set the pleadings of the Great Physician at naught till something serious threatens their existence, and then they are willing, *for the time being*, to lend an ear to him.

I know that perfection has not been attained in this line; that the doctors *seem* to be to blame for not knowing some things we wish they did know, and that there is, perhaps, something in the remark, that "the reason why medicine has advanced so slowly is because physicians have studied the writings of their predecessors instead of nature." This kind of misfortune is not confined to that profession; but the disposition giving rise to it seems to belong to nature—human nature. Take, for example, that other very prominent line of cure, "the cure of the soul." See how, by tenaciously clinging to the writings of their denominational predecessors, men, even men of great learning and ability, fail to break away from the old sectarian bonds assumed in childhood, to work after the more consistent methods of simple primitive Christianity. I speak as a simple Christian, disciple of the Lord Jesus, or such other *Scriptural* name as you care to apply. Yet, what sensible man will say that the man who has for years made a specialty of the study of disease and the means of cure is not to be trusted more than one's own gradually collected and possibly very meager ideas of nature's laws for the maintenance of health or cure of sickness? Or, on the other hand, what wise man will say that he who has studied for the pastorate, in whatever denomination it may be, will fail to be as efficient a comforter and help, and applier of the consolations of Scripture, in the hour of bereavement or distress, as the ordinary layman?

To take another phase of the question: Nature, like appetite, is a very uncertain guide under the circumstances in which civilized—yes, and even uncivilized—human beings live; as witness the cruelties and superstitious excesses of the latter, their peculiar "medicine-men," etc.; and of the former, their departure from nature, and by following a higher law, how much it has elevated and advanced them in the scale of humanity!

I have a little girl just recovering from typhoid fever. Now, what did nature do for her? Insisted on sleep, sleep, sleep, all the time. So far, good. But what of nourishment to supply the wasting system? No appetite, no desire for food of any kind, and exhaustion going on apace, till liquid nourishment had to be forced upon her in spite of the littles one's strongest protests and evasions, in order that nature's sleep might be prevented from verging into the sleep of death. Again, after the fever had abated and recovery commenced, nature called for food as eagerly as she formerly protested against it, when, to gratify this natural appetite with a morsel of solid food would almost certainly have resulted in death from puncture or hemorrhage of the bowels.

Suppose I am afflicted with eczema, or some such skin disease; what does nature say about it? Absolutely nothing, further than that you can see she has been sinned against some way and some time, perhaps away back in the days of my ancestors; but as to suggesting a cure, she is absolutely silent.

To my mind, we live, and are intended to live, by a happy combination of nature and art. It is the glory of manhood and of intellect to go into the domain of Nature, and make her bounteous storehouse tributary to his wants and wishes, in order that the race may be elevated to the highest possible point of attainment in God-likeness of stature. Our eyes must be ever toward our Father in heaven. Division of labor is called for as a consequence, and thus arise such occupations as that of the forester and the gardener, from whose skill, where the forest had stood in its uncouth grandeur, there now stands the beautiful park with its well-appointed walks, its flower-beds and tastefully arranged shady trees and evergreens; the beautiful lawn in front of the mansion, with the garden and orchard close by, etc. So the physician, the farmer, the merchant, and others of occupation innumerable, among whom, and last, but not least, the keeper of bees, and he who supplies him with hives, sections, and frames.

Let us never decry any honorable occupation, nor put the faults of individuals as black marks against a peculiar calling. When we defame our fellow-men we besmirch ourselves; and there is something that lies under the old proverb, "Give a dog a bad name and hang him," which suggests that, to speak evil of our fellows, we exert upon them a hurtful influence, though it may be indirectly. R. W. McDonnell.

Galt, Ont., Can., Nov. 13.

[Thank you, good friend M. A few days ago, while spending an evening with Prof. Cook and his good wife, the latter gave me an additional fact in regard to the bromide of potassium. A lady at an evening party was asked to take another cup of excellent coffee. She declined, saying that, although she would like it, it would keep her awake at night. After that she said it was so exceedingly good she would take another cup, after all, for she could get to sleep by taking *bromide*. Now, if that is one of the uses of bromide of potassium, a caution is surely needed. A drug that will assist us to evade the consequences of letting appetite induce us to take a hurtful amount of stimulant would be *no* blessing to mankind.]

THE FALLACY THAT BEES REASON.

THE CONVENIENCE OF THE ALLEY TRAP DURING SWARMING.

On page 888 of Gleanings we read a very interesting article by C. C. Miller. It is his quotation from Mr. M. L. Holbrook, M. D., that particularly struck me as something peculiarly interesting by reason of the fact that a doctor would advocate the idea that bees reason. Why! he must be a very devoted follower, even to the furthest limits of the Darwinian theory, even to insects. Perhaps if we should give the doctor a little encouragement he might even go further and try to make us ignorant people believe that clams use reason. What are you laughing at? When they are hungry, don't they know it, and absorb more nourishment? and when you put them in prepared salt water, don't they open their shells and live in peace? Who dares say *this* is not reason?

Mr. Darwin, if I am right, found only very slight traces of reason in the ape and dog; but he never went any lower in the scale of animal life. But here we have a gentleman whose balance-wheel has got a start, and it has carried him out of sight. Such things sound novel; and the human mind naturally grasps at novelties until they wear it so hard it won't hold water any longer.

Perhaps our friend Mr. Holbrook would want us to believe that bees use reason when they build their combs. We shall see how his theory is now. Man, of all creation, is endowed with reason in its purest sense, and I am inclined to think that man is the only creature who possesses that article; and man himself can not make and cap a honey-comb—no, not with all the light of the experience of ages, and all their reasoning power to-day. In fact, I have read of an offer of one thousand dollars to prove the fact that any one makes comb honey.

On first thought one is led to believe that bees do reason when we have seen them do something out of the ordinary, as they often do. One might say with propriety, following Mr. Holbrook's idea, that plants have reason. You put a board on the sprouting root of a plant, then see it make a turn and reach the light. Now, that plant reasons thus: "This plank is right on my head, and it looks as though my jig were up; but I'll try to follow this plank across the grain, and I'll reach the light sooner than if I follow lengthwise of the grain on the plank." How's that for reason? But do they have reason? I guess the answer most of us would give would be a laugh. The Creator endows the bees with—well, we call it instinct; but we can never call it reason.

I have noticed now and then something about the Alley queen and drone trap. My experience with it has been good. It is impossible for me to attend the bees in the day time; but when I go home late in the afternoon I can tell which ones have swarmed by their clinging to the cage part of the trap. I just change the location of the parent hive, and put the new hive in its place, release the queen and what workers are clustering on the cage. The result is, in a few days I have a rousing colony, where, if it were not for the queen-trap, I should run a big risk of losing the swarm. But as it is now, I am satisfied with them for my use.

Olean, N. Y., Nov. 20. Geo. Shiber.

THE DOVETAILED HIVE.

A BIT OF MY EXPERIENCE WITH THICK-TOP FRAMES.

Friend Root:—Will you give me space in your columns to give my views to friend Baird, of Florida? I see by his letter that he is in quite a maze as regards the proper kind of hive to use. Brave fellow for coming out and asking the questions he has in his letter! How I admire his pluck! I find that I, too, need considerable advice on some subjects; and having had some experience in selecting hives, I feel like giving my own experience and trying to give him my ideas and advice.

When I started in the bee-business I lived in Missouri, and my hives were the kind our grandfathers used; viz., tall, square box hives; and after two years of worry and work, my bees all died one winter, not having sufficient stores; and, strange to say, I never took one pound of honey from them. This was in 1885 and '86.

In 1887 I learned for the first time there were movable-frame hives, and my brother in Iowa sent me a small model of one; but being discouraged with my former attempts I allowed it to be destroyed. I have seen nothing like it since. In 1888 I came to Colorado, and for two years I worked by the month for a living. Then I got a place, and, finding bee-keeping profitable, I got some bees and started in the business. Having them in old-fashioned hives that were too big and ungainly for any thing. I began to look around for a suitable hive; and, as I stated in GLEANINGS of Oct. 1, I ran across an eight-frame portico hive, sold by a Western manufacturer, and thought it all right when I got them; but the frames being very light and narrow it gives too much room between the top-bars, and I have as miserable a lot of combs in my hives now as you ever saw. All braced together as they are, I can hardly lift one without lifting all together. After getting these hives I found that Root's Dovetailed hives with thick top-bars were sold in my city—a fact I had not found out before I purchased. I went and examined them, and Thompson & Neill showed me the points of advantage in them, and cited me to some of my neighbors who were using them. I immediately went to examine them, and found all combs made as true and regular as if a division-tin had been between all the frames. There were no burr nor brace combs to be found in the hives; no queen-excluders had been used, and no brood was in the supers, either in the sections or extracting-super.

So now, friend Baird, I don't see why you should look any further for a hive when Root's Dovetailed hive has gained such a reputation as it has. For my part I have not heard one word of dissatisfaction in regard to it here in this country. I am going to use it in my Platte Valley apiary hereafter. My opinion is, that any one can use them, and not live in fear of any one hinting kindling-wood after a use of five or six years. And I have an opinion, also, that the best results are gained by putting nearly full sheets of foundation in both sections and brood-frames, and using the Keeney method of wiring.

Now, I may be a little enthusiastic over the question of bee culture; but I, too, have got far enough on in the business to know it has a lasting fascination for me. THEO. V. JESSUP.

Greeley, Col., Nov. 2.

[The above may sound like a big puff for the Dovetailed hive; but we can only say that it came unsolicited. The thick-top frame, on account of its freeness from burr-combs, can not help being liked. Friend Jessup's experience with them is quite in line with that of hundreds of others who have tried them.]

THE AUTOMATIC SWARM-HIVER.

MR. ALLEY EXPLAINS; THE DIBBERN SWARMER.

I have just finished reading Mr. Dibbern's interesting article descriptive of his self-hiver and method of using the same. His article has been a long time in coming since first promised. I have tried in every way I could think of to get Bro. D. to send me one of his swarmers, but have not succeeded up to date. I am now glad he did not comply with my request. Well, if the bee-keepers of this country have an idea that I have tested but one style and but one way of using the swarmer, they are mistaken. Now I will surprise Bro. D. by telling him that the first time the swarmer was tried it was arranged above the hive as he now uses them; and, what is more, the drone and queen trap did the business in fine shape. The trap was placed on a hive in the usual way; a decoy hive was placed on the top of the hive from which the bees were expected to swarm, and the two hives connected by a wire-cloth tube. Two hives were so arranged, and two swarms were successfully hived when they issued.

You will now want to know why I abandoned a successful self-hiver for one that has proved unsuccessful. My reasons are these: I did not consider placing one hive above another, as described by Mr. D., in order to catch a swarm, at all practical; and I still hold to that idea. I have found, by actual experiment and experience, that a self-hiver will work successfully when the bees are obliged to run to the right or to the left of the entrance when they swarm. This arrangement seems a good deal better than the one of Mr. Dibbern.

With the present arrangement as now used in the Bay State apiary we have but little trouble in getting the queen and all (or nearly all) the bees, that issue with the swarm. If catching a few drones and queen is considered successful automatic swarming, our swarmer has long been a success. I will say to those who purchased the swarmers sent out last season (1891), that the only thing to make them perfect, so that the queen is sure to be trapped without a failure in any case, is to make as large a hole as possible directly over the tube which conducts the queen into the long box B. The queen could not seem to find her way out of box A till the light was let in as described. Since this improvement was made, the swarmer has not failed to catch a queen in every case when a swarm issued. The more bees, especially young bees, that can be induced to go up into and out through the metal in box B, the more successfully the hiver is likely to work. When the bees that pass out through the metal in box B return in search of their queen, they generally try to enter the hive by the same passageway they went out. When they do this they find their way to the old hive blocked by the cone tube, and are obliged to stay with the queen, and other bees are sure to join the queen.

There is no doubt that the swarmer not only retards but actually breaks up the swarming fever in hundreds of cases. It reduces the number of drones, and this is one of the principal things that discourage swarming.

Some people have entertained an idea that, where the drone and queen trap is used, the bees gather and store less honey. Experience has proved the fallacy of this belief. I am sure that, instead of being a detriment to a colony, the trap greatly aids the bees in all their work.

Speaking of the success of the swarmer as now used, I will give one testimonial that came to hand to-day:

> *Friend Alley:*—In regard to my experience with the swarmer, I will say I don't think you need have any fears but that it will work when treated and made as I have mine. The actual number of swarms it has hived was nine, without counting the one. It didn't hive all the swarms I had after getting the sample from you. E. A. BOOL.
>
> Hinchman, Mich., Nov. 15, 1891.

Mr. Bool gave a description of his way of using the swarmer in GLEANINGS, p. 706.

The first ideas of an automatic swarmer were suggested to me by an experiment I tried with the drone and queen trap. One day when a swarm issued through the trap, I saw the queen had been caught. I then put an empty hive at the side of the colony the bees came from, and placed the trap with the queen at the entrance of the new hive. In a few minutes the bees returned and entered the new hive—not a part of the new swarm, but all of the bees that were on the wing. Now, it was not the queen altogether that attracted the bees to the new hive. It was taking the trap from the old hive and placing it on the new one, thus giving the front of the new hive the same appearance that the bees had been accustomed to when returning from the field.

No one has ever questioned the practicability of the trap as a swarm-catcher, and soon the reputation of the automatic self-hiver will be

found as practicable as the drone and queen trap.
HENRY ALLEY.
Wenham, Mass.

[We do not yet quite see why you abandoned the upright swarmer as proposed by Mr. Dibbern. With your arrangement, hives must be arranged in horizontal pairs, and this would necessitate leveling both hives alike. It is more economical to have both empty hive and "unswarmed" colony on the same stand; and then, too, a queen will crawl *upward* sooner than she would to the right or left into an unexplored hole.

If the swarmers will discourage swarming by restraining the drones, the trap or even a strip of perforated zinc will do it more cheaply. For the automatic swarmer to be a practical working success, it must hive at least 75 per cent of the swarms in the hands of every bee-keeper. It has hardly done this yet; at least, reports don't show it. We are not prejudiced against the swarmer, but earnestly hope for its success, and therefore welcome all reports regarding it.]

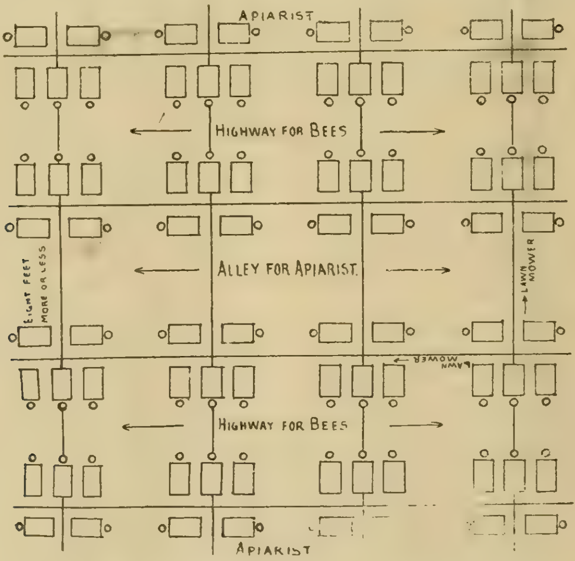
OUR SHANE APIARY AT HOME.

PHOTOGRAPHY, EVERGREENS, WINDBREAKS, ETC.

By Ernest R. Root.

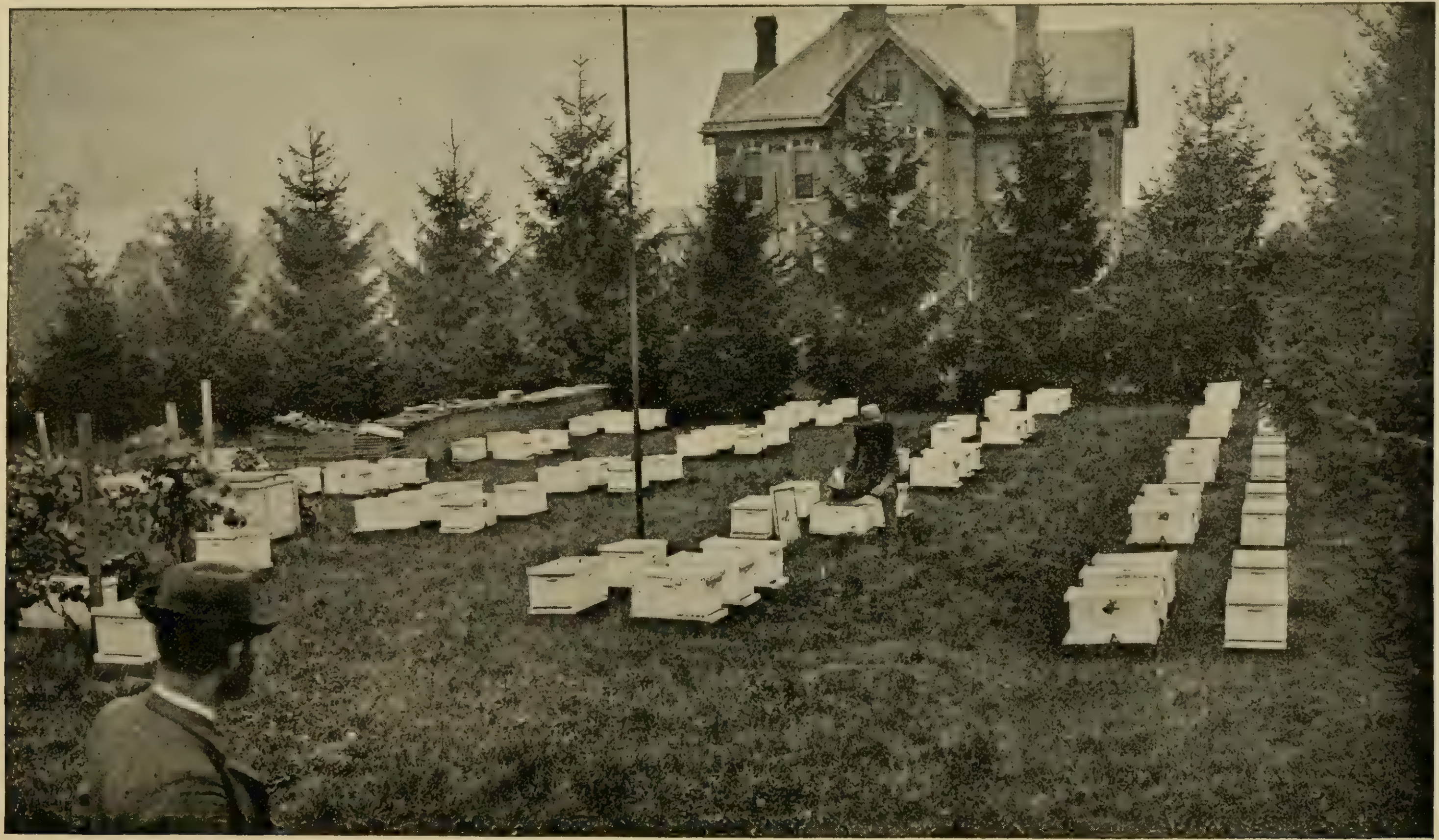
As our readers doubtless know by this time, I have not only used the bicycle as an aid to my apicultural studies and investigations, but have brought into play the camera. Both of these hobbies were taken up for mere pastime, and as a recreation from my regular every-day duties. While they fulfilled this purpose admirably, I have been enabled to turn them to *practical* account. As I have told our readers heretofore, photographs of apiaries should not be taken when the sun shines, but, rather, on a cloudy day. One afternoon in October our yard was illuminated just to suit my fancy, and I accordingly poised the camera, and took a shot, while the apiarist was at work, of one corner of our home yard. The result shows that, while I was holding the bulb by which I regulated the exposure, the camera took in your humble servant—at least the upper part of him. Mr. Spafford, our apiarist, had just removed the cover from a Dovetailed hive, and was sending two or three whiffs of smoke over the frames to drive the bees down. The hives are arranged on the S. E. Miller plan of grouping—five in a group. This arrangement not only affords convenience, but the greatest economy of space. The apiarist has always a convenient seat, and his basket of tools for five hives is within an arm's reach. If grapevine or other shade is needed, one tree or vine will answer for five hives; whereas, by the single-hive plan there must be some sort of shrub for each stand. Besides this, there is an alleyway for the bees and one for the apiarist; and there is plenty of room for a two-horse wagon. Unless it is at night I do not advocate or practice the plan of driving horses in an apiary; but an empty wagon may be pushed among the hives, loaded up, and then the wagon can be drawn out by means of a long rope hitched to a team, at a safe distance from the bees.

When we brought home our Shane apiary at night, as before mentioned in GLEANINGS, the horses were driven up one of these alleyways, and the wagon unloaded on either side. All the hives shown in the picture were hauled in two loads—57 in one and 27 in another. The former were hauled on our heavy lumber-wagon, and the latter on our light platform spring.



THE S. E. MILLER PLAN OF AN APIARY.

The plan of the apiary in the photograph is shown more exactly in the accompanying diagram. The circles at the ends of the hives indicate the entrances. The groups are 16 feet apart, and the hives are 18 inches from each other. This leaves plenty of room for a lawn-mower to run in between, thus keeping the grass down. Eighty colonies arranged on this plan can be accommodated on a plot of ground 80 x 60 feet; or, better, 80 feet square if laid out in 24-ft. squares. It may be urged, that land is usually cheap where out-apiaries are located. Yes; but the larger the area for a certain num-



THE SHANE APIARY IN THE CORNER OF THE HOME YARD AT THE HOME OF THE HONEY-BEES.

ber of colonies, the more traveling to and from the different hives, and the more space of grass to mow down.

As will be noticed, the hives are all of the new dovetailed type, and every one of them contains Hoffman frames. They are ready at almost any moment, after closing the entrances and securing the cover and bottom, to be loaded on to a wagon like cordwood, or to be carried into the cellar without handling with care or right side up.

Every hive is elevated on a Heddon hive-stand, and this contributes in no small degree to one's comfort in working over the hives, and in the preservation of the bottom-board and the consequent dryness on the inside of the hive for either summer or winter. But of these I shall have occasion to speak in another article.

Perhaps the most conspicuous feature are the evergreens, which were set out in 1879; and now they have grown to such a size that they form an admirable windbreak. In a few years more we expect to cut off the tops, and then, of course, the limbs will intertwine closer than they do now. As it is, it is not pleasant for either man or beast to crowd by their branches, if, forsooth, he can. During some of our recent cold windy days I noticed a marked contrast between the amount of air circulating inside and that outside of the inclosure. While the evergreens waved and roared with the wind from without, inside it was comparatively quiet. When A. I. Root desired something better than a high board fence he builded (or, rather, set out) better than he knew.

Two or three weeks before this picture was taken, our hives had not been leveled up, and some visitors who had called seemed to be very much surprised that they were not in straight rows, and square with each other. We tried to explain to them that the hives had just been unloaded, and that we had not had time to draw them to a line. The explanation did not satisfy them. However, I determined, before more visitors came, that the hives should be lined up, and *they were.* As to how well the work was done may be evidenced by a look up the first row at the right. They are all "leveled"—that is to say, the front end of the hives is a trifle lower than the back, so as to shed water from the entrances. Yes, our whole apiary, even including the hexagonal part of it (only a very small portion of which shows in the picture), had been brought to a line.

I presume some of you have been asking, "Whose brick house is that just beyond the trees?" Well, that is the paternal mansion of Rootville. We do not all live there—oh, no! While it is a large and comfortable dwelling, it is not big enough for more than one family. My mother has always said that she loves her daughter and daughter-in-law too much to incur the risk of having them with their families under the same roof. This may account in no small degree for the fact that there have never been any "family rows" in Rootville. We all live under *our own* roofs, within about a stone's throw from each other.

NOTES FROM THE CHICAGO CONVENTION.

AS REPORTED BY DR. MILLER.

The Chicago convention was good. It always is. Nine states were represented, and a crowd of good workers were there. I think a little more solid work than usual was done. A business trip to the North by O. O. Poppleton gave us a representative from as far away as Florida. A. I. Root, who formerly did not favor conventions, has been converted from his errors; and as he never does things by halves, he is now a convention man all over, and was a faithful worker through every session.

I saw there for the first time J. H. Larrabee, the representative of the United States government. I like him. He is modest enough not to think he knows every thing, and I don't see any reason why he should not be a real help to the fraternity. He was urged to communicate more frequently and more directly with bee-keepers, and he expressed himself as desirous to hear from them, and especially to know upon what subjects they wanted experiments made. I think he has done this before, but, strange to say, I believe he reported that only one man had sent in any request as to experiments. This should not continue.

The convention tackled the very important item of grading honey. I think no convention has ever had the hardihood to undertake it before. A committee of seven, with Dr. Mason as chairman, were instructed to report a scheme for grading. Several times the report of the committee was called for, but each time the reply was, "Not ready." At last the report was that they couldn't agree. Then the convention resolved itself into a committee of the whole, and "rassled" with the problem in dead earnest. But the problem "downed" the convention, and dinner time found them without an agreement. "Too bad that we couldn't agree upon something, and at least make some kind of a start," was the comment of more than one during the noon hour.

After dinner, with perhaps a little feeling of desperation, the subject was renewed, in the attempt to see how far there could be any agreement. Then the good sense and the good spirit of the convention showed itself, and each one seemed willing to make any reasonable concession to the views of others. So a system of grading was agreed upon, subject to the revisional judgment of the assembled Albany wisdom. I think it is far from a perfect system; but it is a *start*, and that is at least something.

Among other things, the ubiquitous question as to Sunday closing of the World's Fair came up. Two to one were in favor of Sunday closing, but in the interest of harmony the majority yielded. It is not entirely clear to me why it would not have been just as graceful and proper for the minority to yield to the majority.

Although no action was taken, there was considerable discussion as to honey being entitled to the same bounty from the government as maple sugar. It was argued that the McKinley bill had so lowered the price of sugar imported, that the home product could not compete. To this it was replied that the same action had brought down the price of honey to meet sauces made with cheap sugar.

The convention, backed by two commission men, recommended the shipping of comb honey in single-tier cases holding 12 or 24 sections each. The weight of opinion seemed to favor, for extracted honey, square 60-lb. tin cans packed in wooden cases, two in a case, but some were quite earnest for cheap barrels.

Publication of honey quotations had some attention. The practice of publishing above or below what could be actually obtained was deprecated, and it was urged that those publishing quotations should give them somewhat as they were given of staples such as butter and wheat. That is, a man who sells on commission should say at what price honey is actually selling; and if he is a cash buyer he should say what price he is paying.

Action was taken toward allowing the society in future to be part and parcel of the State society organized last winter. It was the general opinion that this would be a good thing for both sides, with no disadvantage to either. In any case, the same members will attend at Chicago, and, with low rates so frequently available, and such a central location, surrounded on all sides by live bee-keepers, there seems no good reason to suppose that there will be any failure in always having a good convention in Chicago.

That prince of secretaries and bee-reporters, W. Z. Hutchinson, was busily engaged throughout the session in pushing his pencil, and we shall undoubtedly have a full report in the proper time and place. C. C. MILLER.

Marengo, Ill., Nov. 24.

AN OPEN LETTER TO A SUPPLY-DEALER.

DR. MILLER URGES THE IMPORTANCE OF SMALLER PACKAGES FOR SHIPMENT.

My Dear Friend—(for I consider the whole multitude of supply-dealers as friends to bee-keepers), you have shown yourself so accommodating, and have so carefully studied the wants of your customers, that I feel quite free to suggest what I think might be still further appreciated by your patrons. I don't mean to say that I know more about running your business than you do, but I know how it seems at my end of the line better than you, and it will do no harm anyhow for me to make suggestions, and then you can follow them or not. It just occurs to me that you might profitably do the same thing; that is, make suggestions to your customers, and, as I think more about it, I believe that has been done to a considerable extent.

Your advertisements and price lists leave nothing to be desired in that line; and when an order is sent to you it is generally acknowledged by return mail, with some hint as to when the order will be filled, unless it can be filled at once. This prompt acknowledgment of the receipt of our orders is appreciated by us bee-keepers.

But when the goods are received from the railroad station, then the trouble begins. You have plenty of hands to handle with ease a lot of large boxes as well as a large lot of boxes; and, to make as little expense as possible in the way of packing, you very often pack goods in such large boxes that the bee-keeper who has no extra help is almost unable to handle them at all. You know that bee-keepers are very likely to live out in the country, where they can not readily get help on a lift; and a box weighing some 200 pounds is rather a stumper to be lifted out of a wagon and carried into a shop. I'm glad that sections have settled down into packages of 500, even if 10,000 be sent at a time.

I know that it costs a little more to pack in two or three small boxes than it does to pack in one large one; and I know, too, very well, that the extra expense, first or last, comes out of the bee-keeper's pocket; but then, I'd rather pay a little more, directly or indirectly, and have the goods in shape so I can handle them. Sometimes I have had a drayman haul out a load of supplies for me from the station just because they were in too large packages for me to handle alone, when the amount I paid the drayman would have more than paid the extra expense of putting up the goods in packages small enough to be easily handled.

Another thing that I would not lay so much stress upon may still be worth considering. It is, giving some little thought to what the packing-box may be good for after it is emptied. Some goods are so packed as to need no box of any sort, as hives are often packed. When possible, that is decidedly the best plan. But sometimes a box is put together in such a way that, when emptied, it is of no possible use but for kindling-wood, when a mere trifle more would have made it a good serviceable box. Your customer will appreciate the box on the same principle that extracted honey sells best in packages that can be used otherwise when the honey is used out of them.

Occasionally I have had goods so insecurely packed that the railroad handling had broken them open. That's bad, and it's almost as bad to have them crossnailed or put together in such a fashion that the whole thing has to be nearly dug to pieces in getting it apart. Fasten them up just as you would if you had to open them yourself on arrival.

Sometimes I have studied over a package no little to know the right side to open up, and then perhaps opened it upside down. Possibly it didn't make any material difference, and possibly it did. The beginner who gets his first box of foundation packed as I have often seen them will be utterly in the dark as to where to commence opening. Some word written or stenciled on the right side to be opened, as, "Open here" would make all clear sailing.

There is a still worse trouble, and I'm not sure that there is any easy remedy. When several packages are sent at a time, there being a variety of articles, you study how to pack them to the best advantage, and I often admire your care and the ingenuity displayed in packing. But I'd like to have you at the other end of the line sometimes help to open. It may be that I am in a hurry for some one thing, and don't need the others for days, perhaps not for weeks, for it is getting more and more that bee-keepers order in advance of their needs, and you encourage this by offering discounts for early orders. But there is no way to know which box contains the thing I want. I open one box at random, and it may be that I have guessed right; but the chance is one out of ten. If I don't find it on top I must go to the bottom, so I must *empty* every box till I come to what I want.

Once I got a lot of stuff for shipping-cases packed in nine boxes weighing about 200 lbs. each. They were all piled up in one end of the room of the shop where they were to be made. The first box opened did not contain a full variety of pieces to make a shipping-case, neither did the second, third, or fourth, although I lacked only the small strips for the front, or, rather, one kind of them. I am stating a literal fact when I say to you that I had to open every one of those boxes, and found in the last one the pieces I wanted. When opened, the boxes could not well be piled up again, and so the floor was nearly all taken up with them, and one by one they were emptied as the stuff was used out of them.

I'm telling you about this, not because I know just how to remedy it, but because I think the difficulty at my end of the line has never occurred to you, and hoping that you may see some way out. In the last case I mentioned, the very best thing for me would be to have each box contain all the kinds of pieces to make a shipping-case, and the right number of each, so that a certain number of complete shipping-cases could be made before the second box should be opened. I don't know just how difficult it would be for you to do that. Possibly the remedy would be worse than the disease. Perhaps you could mark on each box what it contained, or number the boxes, and then tell in a letter what was in each box.

Now, don't think that I am utterly unreasonable, and that I don't appreciate the efforts you have made in the past to study the convenience of your customers. If none of the things I have mentioned can be easily remedied, I can get along in the future as well as in the past; and if you can see an easy remedy I feel sure you will apply it. C. C. MILLER.

Marengo, Ill., Nov. 11.

[Why, doctor, you have been studying on the same problem we have, and we were just "getting a good ready" to tell what we had done or were about to do, in the line you suggest. Well, perhaps we had better tell some of it now. In the first place, our Dovetailed hives per package of five hives require only a few ounces of crating, and this crating is for the sides and ends. The rest of the stuff is all boxed inside of itself; that is, inside of the bottom-boards, in such a way as not to mar or injure any portion of the hive. Since rubber stamps have become so cheap we are stenciling the contents of nearly every box we put up, in plain letters. The object of this is twofold: To avoid mistakes on the part of our packers in selecting the packages; and, second, to inform our customers, when goods are received, what the package is and what its contents are. Again, we have been reducing the size of many of our boxes. Our new goods are nearly all put up in small packages. You say you would like to have a box or crate that would be useful for something after it has subserved its purpose of protecting the goods during shipment. Well, we are about to do something in this line. Our 12 and 24 lb. shipping-cases are to be put up in crates with convenient handles holding 100 and 50 cases in a crate respectively, in the *flat*. After these are received by the consignee, the crate is made of such size and shape that it will hold either nine 24-lb. cases put up, or eighteen 12-lb. cases filled with honey. These crates are so made as to conform to the rulings of the Western Classification Committee; therefore bee-keepers who receive our shipping-cases will need to preserve the crates in which they come.

Some six or eight years ago, when the writer was at Oberlin, studying, he used to order goods from the Home of the Honey-bees, for local bee-keepers. When the goods were received he was greatly chagrined and surprised on one or two occasions to observe that some of the small packages had to be literally "dug open," as you say. One of the employes had evidently driven nails because he did not have any thing else to do, and they were long *wire* nails at that. Half the nails and half the size would have answered just as well for ten times the distance the packages had to travel. It did not take E. R. long to sit down and write home a genuine old-fashioned "growl." Even now, when he is perambulating through the packing-rooms, and finds some new hand putting a surplus of nails into a box, he hears from him, because he knows what it means to pull those same nails out again. We have learned that it is much better, where goods are very heavy and bulky, to bind the boxes with band iron, and use fewer nails, than to use a great lot of wire nails without the binding.

Some customers in the South have requested to have all their goods packed in one large box. These cases are very rare indeed where a lower rate of freight is obtained thereby. But even if a lower rate were obtained, many bee-keepers would prefer to pay more and have smaller packages.

This will doubtless be read by all supply-dealers, and we have no doubt that they have been making improvements in the line indicated. When bee-keepers and supply-dealers can get right down and consult each other's convenience, it will be dollars and cents in the pockets of all parties concerned.]

LADIES' CONVERSAZIONE.

INTRODUCING QUEENS IN THE FALL.

OUTDOOR FEEDING VS. FEEDING IN THE HIVE FOR WINTER.

I have often seen it advised in the bee-journals to purchase queens in the fall, as they can be bought cheaper then, and we have more time to see to improving our bees; but it is so much more uncertain about their being introduced safely that I would not advise purchasing high-priced queens in the fall unless there is an almost sure prospect of a honey-flow. If the queen is killed it takes time to send for another; or if they are left to raise one for themselves, the colony is apt to run down, and it is quite a risk to run—that of the young queen becoming fertile—because, if there is no honey-flow, there are but few drones. Tinkering with bees to keep them built up in time of a honey-dearth, and no queen, is more than likely to prove an injury to them, even in the hands of veteran bee-keepers. I did not, in past years, think so; but I have come to the conclusion that, in times when there is no honey coming in, the fewer bees that can be handled, if they have a queen and plenty of honey, the better it is for that colony. In fact, about all a colony of bees needs is a good queen, a continuous honey-flow, and plenty of room to store honey; but it does not seem a detriment to them to be handled frequently, provided the queen is not injured; but in time of a honey-dearth, if they have even a fair queen, I would let them alone and give them an occasional feed out of doors, of sugar syrup in a shallow wooden feeder, with wooden floats, made by nailing strips of boards together, with bee-spaces between, set up edgewise. Ours is about 4 inches deep, 6 feet long, and 1 foot wide. It ought not to be too heavy for a woman to handle, as, very likely, she will have much of the occasional feeding to do; neither should it be small, because it takes more time to feed in small feeders and keep them clean. The little boards that the floats are made of should not be of too thin lumber, because they will give out too soon; nor of too heavy lumber, because they should float readily on top of the syrup, and sink when the syrup is taken out. For 100 colonies there should be at least three such feeders, to give sufficient room for all, that they may take it up quickly and not alight upon each other. It makes the colonies in much better heart, this occasional feeding when no nectar is secreted in the flowers.

We found that 100 colonies would take up 12 quarts, which would be about half a teacupful to the hive, in about 15 minutes after they had been fed several times. It was surprising to see how quickly the news would spread over the apiary that the syrup was coming. We feed at all times of the day, just when most convenient, but when warm so the bees could fly readily. If the neighbors' bees got any it did them good. So much time is saved in thus feeding outdoors, that it more than pays our loss of a little syrup. If bees are two miles away they get but little of the syrup, as it is taken up so quickly, and the feeder is abandoned very soon after the feed is taken up. As our bees are mostly Italians, and the neighbors' are nearly all blacks, we can tell when their bees come.

You say in your footnotes to my article in GLEANINGS of Oct. 15, that one objection to feeding sweetened water is, that it sours so soon. I would not feed it so weak that the bees would not take it up readily, nor so much at a time that it would have time to sour before they work it all. Sometimes, when I would take a pailful down to replenish the feeder, it would not all be gone then. If it is poured in slowly in one spot, as the feed causes the feeder-float to rise it carries the bees up with it, and the bees back out as the syrup rises; and if the weather is not too cold it will not hurt them if a little syrup gets on them, if not too thick. Last spring they seemed to get daubed, and some would not get back to their hives when the syrup was rich; but this fall we fed syrup just as rich with no such trouble. I think it was because we gave them more room, and the wind was not so chilly when we fed. This fall we fed out of doors in a sunny place, the ground covered with leaves, and with room for all to work. After feeding up for winter (we fed about 4½ barrels to 225 colonies, and some colonies had enough to winter) there was about half a barrel of sugar left; and as the bees were short of feed we fed the half-barrel outdoors, and also quite a large number of brood-combs that had just a little honey in them, some more and some less. They did not quarrel over the honey in combs nor in the feeders. Because there was room for all, I think, was the reason there was scarcely any loss of bees.

Those feeders make good watering-troughs for bees when not needed for feeding. The only objection is, they become foul when used for watering, and are hardly clean enough unless they are thoroughly scraped and scalded. If left dry they may leak; but I heated rosin and lard (just enough lard so that the rosin would not be too brittle, and not enough to make the rosin soft, so that the bees would stick to it), then poured in the rosin, a little at a time, very hot, and let it run down one side, and a little more for the ends, holding up the trough so that the rosin run along the cracks only where joined together, being careful not to miss any place.

We had quite a number of supers with just a little black honey in the sections. We tried piling them up out of doors with just room enough for half a dozen bees or so to get in at a time; but they would kill each other so badly that we carried them back to the honey-house. When we fed in feeders or brood-combs we could take out those sections and set around on top of hives, and there was no fighting; but they soil the sections too much. If caps are unsealed, and then removed just as quickly as the honey is all gone, they are not injured much. The cappings are wasted if not shaved off or put on a broad board.

Roseville, Ill., Nov. 10. Mrs. L. C. Axtell.

[We have read your article with considerable interest. It would be a great saving of time if we could manage to feed outdoors, and yet overcome all the difficulties. To many of us the feeding of so many bees belonging to neighbors would render the practice unprofitable; and even if the neighbors were of the kind and gentler sort, willing to pay their share, it would be hard to decide what would be fair for all parties concerned. One difficulty that we experienced years ago was, that the stronger colonies would get a good deal more than their proportionate amount of feed, while the weaker ones would have a great deal less than they ought to have. In other words, it would cost us more to feed up outdoors on account of the unequal distribution of stores than it would to feed each colony the exact amount it required *in the hive*. Outdoor feeding is a splendid thing to keep the bees out of mischief, during a dearth of honey. If we could buy up all the neighbors' bees, and equalize the strength of the colonies throughout the apiary, perhaps we could feed quite satisfactorily outdoors for winter. But feeding is a very small job with us. We have about two dozen large Miller feeders. The amount required for each hive is marked on each cover or each slate, and the feeders are put on during the day. Toward evening, with our large feeding-cans we go around and pour out by measure the amount each colony will need, and the feeding with the colony is done for the whole year. We do it all at once. Two hours' time every day toward evening for a week will feed up a hundred colonies.

In regard to introducing queens in the fall, there is a little more danger if you leave the colony to its own sweet will. We recommend feeding the colony a little if it is during a honey-dearth, before introducing. The condition of the hive then, although artificially brought about, is nearly the same as during the honey-flow. Mr. Hutchinson, in his "Advanced Bee Culture," makes this a strong point for successful introducing.]

ORDER IN THE APIARY.

A PLACE FOR EVERY THING, AND EVERY THING IN ITS PLACE.

I wonder if it troubles other bee-keepers as much as it does us to keep things picked up and put in place. Our out-apiaries are generally in good shape, for we think we *must* straighten things up there before we leave. It is the home apiary that suffers. It is *so* easy to think we must rest a little before putting things straight, and we are too tired to do another bit of work that night, and as it's at home we can easily fix things up in the morning! In the morning something else is very apt to interfere with the cleaning-up, and it goes until a more convenient time, and sometimes things get pretty well stirred up before that convenient time comes.

I don't mean to say that we never pick things up the same day, but that sometimes they are left, and I believe we are almost always sorry for it. I *know* I am. It doesn't take such a great amount of time or strength either to do it at once, and the amount of comfort it gives to know that every thing is in good shape more than pays. Aside from the comfort, there is a great deal wasted by leaving things lying around, and a great deal of time wasted in looking for them.

It is a great deal better to drive our work than to let it drive us. If we once get behind it is extremely hard to catch up. I know there are times when a certain amount of work must be done in a day, and by the time that is done we are so utterly worn out that it would scarcely be wise to attempt any thing else. In that case the straightening-up would better be postponed—but that doesn't often happen.

Perhaps some bee-keepers don't do any stirring-up in their apiaries, consequently don't need to do any straightening-up at night. But ours often looks as though a cyclone had struck it, only perhaps the cyclone would have swept things cleaner. I have often looked around our apiary at night, after a busy day, with genuine dismay, and wondered if it ever would be reduced to any thing like order. But it always came out all right in a short time, if we only went to work at it right away.

It's a good deal the same with our shop. We have our "clarin' up" times, as Dinah had, and every thing is put in apple-pie order. Then we firmly resolve that every thing shall be kept so. For a time all goes on swimmingly. Then some one gets in a hurry, drops a tool where it doesn't belong, or perhaps a lot of stuff comes in boxes that must be opened, making a big muss, which, in the hurry of the moment, is left, and so it goes, one thing after another, until any one might easily imagine that things never were in order and never would be.

A bee-keeper always has many odds and ends as well as regular tools and fixtures to store away until needed. They are sure to be needed some time, but the problem is to keep them all in plain sight so they can be readily found when wanted without having to spend more time looking for them than they are worth. We sometimes nail boxes against the wall, forming little cupboards in which the odds and ends are placed, or any thing we wish to store, such as T tins, wire stoppers for hives, etc. Then by glancing around the room we can usually find what we want, without much trouble. Emma Wilson.

Marengo, Ill.

[Your remarks on order are excellent. From what we saw on our visit to Dr. Miller's we have no doubt that you practice what you preach. It is a good deal easier to keep things in order every day than it is to have a general "clarin' up" once a month; but we suspect that, if you were to visit the apiary at the Home of the Honey-bees during the busy season, you might wonder whether we *ever* had a "clarin' up." While we are dictating, we cast our eyes over our office desk. It looks decidedly neglected—books, papers, manuscripts, electrotypes, bee-traps—well, we won't say any more, because we are ashamed already. We have decided to have a clarin' up before Dr. Miller and W. Z. Hutchinson give us a call. If folks would only let us *know* when they are coming, we would try to have the grass cut down from our entrances, hives all leveled up, tools all put away, and our desk in apple-pie order.]

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

Question 197. *After a swarm has issued would you advise introducing a laying queen to the parent hive, or let them raise a queen of their own?*

I introduce a laying queen.
Ohio. N. W. A. B. Mason.

For general practice I think it better to let them rear their queen.
Michigan. C. A. J. Cook.

Where one has skill and time to rear and introduce queens, introduce them; otherwse, let them develop their own.
California. S. R. Wilkin.

If they are No. 1 bees, I would; if they are not, I would improve the opportunity of introducing a good one.
Illinois. N. W. C. Mrs. L. Harrison.

I don't know. I haven't had experience. I rather think if I let them swarm I'd follow in the same line and let them raise a queen.
Illinois. N. C. C. Miller.

Let them develop their own queen, which is already half developed at the time the swarm issues. Do not introduce any queen.
Michigan. S. W. James Heddon.

Yes; for by so doing I gain time, prevent second swarms, and run no risk of having a queenless hive by the young queen getting lost on her bridal tour.
Louisiana. E. C. P. L. Viallon.

That would depend much upon locality. If you have a fall flow of honey, and need the bees, introduce a queen to the parent colony. If not, let them raise a queen.
Ohio. N. W. H. R. Boardman.

With our honey resources I should prefer to have them raise a queen of their own. With present prices of honey, the bee-keeper should avoid labor that does not pay.
New York. C. P. H. Elwood.

My practice is, to let them raise their own. Eggs require about six weeks to eventuate in honey-gatherers; and six weeks after swarming time, the harvest, in many localities, is over.
Ohio. N. W. E. E. Hasty.

It will be the most profitable to let the parent colony raise a queen of their own, because such queens count among the healthiest and best queens raised. But all after-swarms should be prevented.
Ohio. S. W. C. F. Muth.

If I had good laying queens, with no other use for them, I would introduce them at this time. Usually I prefer to introduce a virgin queen that I know has been raised from good stock.
Illinois. N. C. J. A. Green.

We should prefer introducing a laying queen of choice stock, if we had one; and we would then destroy all the queen-cells to prevent further swarming. If, however, the colony thus swarming was a choice one, we would not hesitate to let them raise their own queen.
Illinois. N. W. Dadant & Son.

If it is an early swarm I should prefer to introduce a queen. A later swarm toward the close of the honey-flow might be allowed to raise their own queen. I want egg-laying to go on briskly when there is a prospect of those eggs hatching bees that will gather honey.
New York. E. Rambler.

With us, with our short honey season, I would rather let them raise their own queen. If we should introduce a laying queen after the season was so far advanced, bees hatched from her eggs would never gather any surplus honey for us, as the season would be over before they would hatch out. I would much rather not feed brood at that time. Let the bees put all their force to gathering honey.
Wisconsin. S. W. E. France.

I would let them raise their own queen. In this locality the giving of a laying queen causes the parent hive to swarm again right in the midst of the honey-harvest, which is a great detriment; while the bees produced from the eggs laid by this queen during the first two weeks of her stay in the hive become consumers at the end of the harvest, so here again it is a disadvantage without any recompense, as these bees all die before winter, so are of no advantage, even for this purpose.
New York. C. G. M. Doolittle.

I would say to most people, let them raise a queen of their own if the stock is desirable; if not, cut out *all* queen-cells and give them a cell from a choice colony. But my method is, to cut out all queen-cells the fourth day after they issue, and again in 8 days; and in two or three days after, I run in a virgin queen raised from a choice stock. My experience is, that, if a laying queen is introduced too soon, another swarm is liable to issue, as they also are if allowed to hatched a queen; but by keeping them queenless 14 or 15 days they are then hopelessly queenless, and will accept a virgin queen, and will not swarm.

Vermont. N. W. A. E. MANUM.

Give them a laying queen if you have one to spare; but every one does not have laying queens waiting around for that purpose. In my plan of management I so reduce the numbers in the old colony that it does not matter so much if they do not have a laying queen for a few days till they can rear one from some of the most advanced queen-cells. My plan is, to give all combs and adhering bees but two frames to the new colony, removing to a new stand where, with swarming impulses satisfied, they work with a will, and gather more honey than they would if they had not swarmed at all; and the few left on the old stand will build up into a good colony for next year.

Wisconsin. S. W. S. I. FREEBORN.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PATENTS ON BEE-HIVES.

Another patent has just been issued on a beehive. It is dated Nov. 10, 1891, and was given to Reuben H. Ewing, of Iowa. It is the old story—a moth-proof hive—worthless and useless, with not a new feature in it. Here is the claim of the so-called invention:

> The bee-hive A, having a horizontal bottom B, with the central hole *b*, just large enough to allow the bees to pass through it, and an upwardly convex bottom C, whose oppositely inclined sides meet in a vertex *c*, directly under the said hole, and just far enough therefrom to permit the bees to reach the hole, the said hive being provided with opposite entrances *c' c'* for the bees and moths between said bottoms, as shown and described.

The inventor does not even know the sex of worker bees, as will be seen by the following from specifications, where it is called *he* every time.

> The tendency of the bee is to move upwardly; and as soon as he reaches the vertex *c* he will make for the entrance *b*, while the moth will travel up one side of the bottom C, and down the other, thereby failing to get into the honey or bee-chambers at all, not being able to reach the hole *b*, even if inclined to do so.

What a *pity* it is to fool away good money for such a worthless patent!

What *stupidity* it is to maintain a lot of useless "examiners" to approve of inventions, the practical workings of which they know nothing about!

What *dishonesty* it is to grant patents, over and over again, to different persons on precisely the same thing!

What *robbery* it is to take the money of the credulous inventor and render no equivalent for it!

In this case the patentee has sold one-half of the "invention" in advance to secure the money to get a patent, which, for practical purposes, is not worth the paper it is printed upon! Bah! —*American Bee Journal.*

BLACK BEES SUPERIOR TO ITALIANS.

The Italians are doomed in this section—too much swarming and too little honey, and too much stinging. Now, when my native brown bees were booming on buckwheat and storing beautiful amber honey in supers, one-pound boxes, the Italians were gathering honey-dew and using it all up in raising brood, and in swarming and clustering, five or six swarms together; and they balled all the queens, and then all the bees would go to one hive that issued one swarm, and pile on so you could not see any thing but a pile of bees. Well, I learned how to separate them, but it's a muss and bother. I have five brown (or native) colonies that did not swarm this year nor last. One queen is two years old; but the other four queens superseded young queens, and one colony has the second young queen this year, and hasn't swarmed out for two years, and has filled eighty one-pound boxes of the whitest honey you ever looked at, and 8 Langstroth frames of buckwheat honey, and two frames, half of honey and half of brood, at this date, Oct. 5. Said hive is a Chautauqua double-walled hive with two supers and one top. SETH NELSON.

Wistar, Pa., Oct. 6.

A STRONG TESTIMONIAL FOR THE IMPORTED ITALIANS.

You have given brood-frames a good, long, and thorough discussion; now if you would give the queen subject as good an overhauling it would be very interesting to me, but may be not to the majority of the readers of GLEANINGS. I have been studying, and putting to practical test this subject of queen-breeding for about ten years, and I have never been able to buy more than one queen that came up to my own raising for honey, and that was an untested one I got of A. I. Root in August, 1890. I told him I wanted a daughter of an imported mother, and I suppose that was what I got; but she was so dark that I was ashamed to show her to a bee-man who happened to be at the office when I got her. But I am not ashamed of her bees nor of the pile of honey they put up the past summer; and, besides, the queen led off a fine swarm and made 56 sections of honey after filling a new hive of 10 Simplicity frames. I then divided the old colony, and made two out of that, and got a crate of 28 sections partly filled from one of them, and got 28 sections before they swarmed. Of course, that is not big for some localities; but for this one I do not think it can be surpassed. I have bought several fine queens, and then would have to discard them and then stock up afterward on account of their poor qualities. I like extra fine bees, such as five-banded, to look at as well as any one; and if I can find those that will come up to the three-banded, such as the daughters of imported mothers produce, I want them, and will willingly pay $5.00 apiece for queens that will produce strictly five-banded bees, and come up to what I have for honey.

Poplar Flat, Ky., Oct. 26. L. C. CALVERT.

[Your letter seems to argue that we have been giving some attention to the matter of good queens. It is hard to get a strain of bees that will invariably duplicate certain qualities; but our imported stock come the nearest to it. Our dark bees generally do little the best in honey, and so far are the hardiest in winter.]

YELLOW OCHER VS. WHITE-LEAD PAINT.

We note what you say on page 864 about white lead for a body paint to hives. Having had a number of years experience along this line, we several years ago tried yellow ocher instead of white, and have nearly half of our hives painted a light straw color. We find it lasts much better than white, as the hives thus painted two years ago still have a bright appearance, while those painted white turn quite dark in color after a few years' exposure to the weather, and appear more weather-beaten than those in which yellow ocher was used. A very good grade of ocher at 3 cts. per lb. will answer; and if a dainty light yellow is wanted, chrome yellow can be used in the second coat instead of the ocher. Our hives thus treated show no more discomfort to their inmates than the ones painted white. JNO. NEBEL & SON.

High Hill, Mo.

[Yes, sir; there is no disputing the fact about the sticking qualities of yellow ocher. We somewhat question the advisability of using chrome yellow. It lacks permanence, and thereforore ought not to be mixed with a hive paint.]

AN UNFAVORABLE REPORT FROM THE FIVE-BANDED BEES.

You do not seem to be booming the five-banded bees for gentleness as you did a while back in your advertisements. I purchased 14 in August, 1890, and have wished all summer that some one else had them. I will not have them after next spring. I am going to give them to a friend who has the rheumatism. If there is any thing in the theory that bee-stings are good for rheumatism they will cure him. I do not expect to be troubled with it; for if there were any rheumatic microbes in my system the five-banded doctors thoroughly paralyzed them during the past season. WM. L. EWING.

Vincennes, Ind., Nov. 2.

[We never boomed the five-banded bees in any particular. You must have some other fellow in mind. It is but fair to remark, that not all five-banded bees are bad stingers. Those we saw at Mr. Doolittle's were very gentle. Those extra yellow bees bred from Cyprian stock are vicious, or apt to be so.] E. R.

SPARE THE BIRDS.

I have taken quite an interest in the king-bird talk, and must say that, in our country, they don't seem to make bee-killing an especial business. They are mostly abroad in the fields, intent on picking up bugs, crickets, etc., like other birds. Other birds, too, seem to prey upon the bee-hive. The cat-bird is evidently as active an enemy of the bee, for I have seen them fly about my hives even more than the king-bird. I think we ought to spare the birds, for it is plain to be seen that they are becoming scarcer every year; and before we pass the sentence of death on any species we should ask ourselves which are of more consequence, the birds or the bees.

Preston, Minn. F. A. CUMMINGS.

"DONE SPLENDIDLY;" CLOSED-END FRAMES.

I have done splendidly with my bees this year, and I attribute my success to GLEANINGS and your A B C. I am using the closed-end standing frame with the Bristol bottom-board, and several other parts of hives that I have combined together for a double or single walled hive and cheapness combined. The old bee-men of this section say they have not seen any thing to surpass it for comb honey; of course, it would be nothing new to you, as it was mostly taken from GLEANINGS. CHAS. HOWELL.

Hackettstown, N. J., Nov. 5.

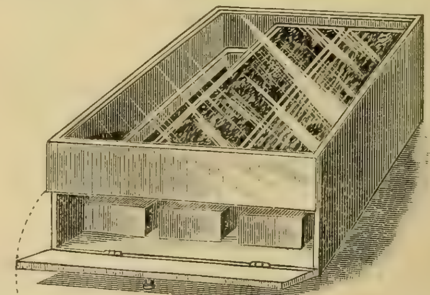
A PRACTICAL TEMPERANCE SERMON ESPECIALLY FOR FARMERS AND MARKET-GARDENERS.

A man in this city, located next door to a liquor-saloon, sells over 150 quarts of milk every day, by the glass. We know that many men drink this ice-cold milk who would otherwise drink beer. The sale of milk by the glass has largely increased during the past few years, and this increased trade is about the healthiest temperance sign we know of. Any one who knows the life of our large cities must understand that a harmless substitute for the saloon is necessary if real temperance progress is to be expected. Theory is one thing, an actual fact is another. There are thousands of men who drink liquors, even to excess, because they do not find a non-intoxicant that they like. Pure cold milk suits them, and they will drink it in place of beer. Let the temperance organizations spend some of their money in locating these milk-saloons close by the door of every rum-shop in the city. They will thus do practical work for temperance, and at the same time provide a new market for milk.—*Rural New-Yorker.*

A NOVEL METHOD OF FORMING SEED-BOXES.

The inclosed was received rather too late last year to be seasonable. Our friends who raise plants on a small scale will probably find it convenient.

Mr. Root:—Inclosed find a rough sketch of a novel little hotbed kept warm with hot bricks—soapstone would be best—I am using in my window to force a few tomato-plants. Shallow cigar-boxes are very convenient for holding the soil; and as they are about 5 inches wide and 8½ long, I would suggest that the inside of the main box be 16x9x6 deep, so a 10x18 window-glass can be laid over the top of all, to retain the heat and moisture until the seed have sprouted through the ground. We can readily see that most of the heat must pass up through the shallow boxes of dirt if they are fitted close, or raw cotton can be pushed down between and around the boxes to close the vent. The bricks can be warmed easily on top of the stove, and will retain the heat some time. All seed-beds should be kept quite moist until the delicate little plants have straightened themselves up through the soil. J. S. REESE.



WINDOW HOTBED, TO BE KEPT WARM BY THREE HOT BRICKS UNDER THE PLANT-BOXES.

Winchester, Ky.

EPILOBIUM, OR GREAT WILLOW HERB.

From my front door, looking over the valley of the Jordan River, I see 100 acres, a solid purple sea of the beautiful Indian pink, purple fireweed, or, correctly speaking, *Epilobium angustifolium*, or great willow herb. It is not only a feast of beauty to the eye, but a flow of honey to the greedy bees, who neglect even the loaded linden bloom for the delicious white nectar of this grand honey-producer. Happy indeed is the apiarist who lives in the land where this plant reigns supreme among weeds.—*Rural New-Yorker.*

THE GARDEN CITY ALFALFA FIELDS PAINTED IN TOO HIGH COLORS; SEE PAGE 894.

Almost too flattering are the reports from Southwest Kansas, in GLEANINGS for Nov. 15, page 894. Mr. McKeever gives this country a pretty good puff; and although he is a preacher, he is also a boomer for this section of country. Now, I do not want to be hard on Mr. McKeever; I only want the facts stated. I will give my report for 1891.

I received from 25 stands, spring count, 800 lbs. of comb honey in 1-lb. sections; 1200 lbs. of extracted honey—about 55 lbs. per stand—and increased to 40 colonies in fair condition for winter. Mr. McKeever says, on page 894, that we have from 50 to 60 stands apiece. I have 35 stands, and Mr. Colton has 65. They came far from an average of 90 lbs. of comb honey. It will worry them to make that much extracted honey on an average. One hive made 180 lbs., but it was not all comb honey; neither were the bees from one of Doolittle's tested queens, and they did not swarm.

Alfalfa does not yield honey all the season—only at certain times. This season our flow was from the 15th of July to the last of August. Last season the surplus flow was in June. He says we can't supply the demand for bees at $10 a stand. A person can not sell 20 stands of bees in this country. There are not so many thousand acres of alfalfa here. It is diminishing. We get fair crops of honey because our apiaries are small. The country will be overstocked with bees just like Arizona in a very few years. This section is not like the Eastern States, because there is nothing to furnish honey except the alfalfa. Wild flowers amount to nothing; fruit-bloom helps to build up in spring some.

I only wish to give the public the facts about this country. There would be a good many disappointed in coming out here after reading his letter. In this market we have not sold 200 lbs. of honey this season. We have to ship most of our honey east or west, and we do not get over 15 cts. for comb honey after the high freight is paid.

I would not advise people to leave a fair location and come here to better themselves. I made the move and am here, and, of course, will stay. We can not make moves every day. It is a great expense to move.

FRANK H. HOWARD.

Garden City, Kan., Nov. 20.

[What we desire to have are the facts in the case. Perhaps our friend McKeever has seen or heard only the bright side.]

GETTING DISCOURAGED WITH BEES.

There are a few reasons why I can not make a success canvassing for GLEANINGS. I can find but few men who care for their bees. When I find a *good* bee-keeper he is posted. The three years past have been so poor that many have gone out of the business. Many farmers are satisfied with the knowledge they get from their agricultural papers, and will not take a bee-paper. I wish the Home talks could be introduced into every home in our land, and their teachings heeded and practiced. Like many others I would have destroyed my bees if it had not been for you. You say, "Hold on one year longer." I mean to try one year longer.

Bancroft, Mich., Nov. 11. LUTHER PRATT.

TWO PUNIC VIRGIN QUEENS THAT "TURNED UP MISSING."

I see Dr. Miller says in Stray Straws, that, after his Punic queen had commenced to lay in fine shape, she suddenly disappeared. I received two virgin Punic queens from friend Pratt. They were safely introduced, and in 25 days I found young bees hatching out. One was mated to an Italian drone, the other Carniolan. Two or three weeks ago I found both colonies queenless. My Punics, like Dr. Miller's, had suddenly and mysteriously disappeared.

T. K. MASSIE.

Concord Church, W. Va., Oct. 20.

THE WAY IN WHICH LIME ACTS AS A FERTILIZER.

The effect of lime to render stiff soils less adhesive is well shown by an experiment of Prof. Hilgard. Let any clay or tough clay soil, he says, be worked into a plastic mass with water and then dried; the result will be a mass of almost stony hardness. But add to some of the same paste half a per cent of caustic lime and a diminuation of plasticity will be obvious at once, even in the wet condition; and, on drying, the mass will fall into a pile of crumbs at a mere touch. In this way clay soils may be made "warmer" or "mellower" by adding caustic lime.—*Rural New-Yorker.*

DR. MILLER AND PROF. COOK AS CONTRIBUTORS TO GLEANINGS.

Please continue GLEANINGS for another year. I had thought of doing without it; but, come to think of it, I can not. I would rather go to bed without my supper twice each month than to miss GLEANINGS. I never had a book so interesting; and the more Dr. C. C. Miller and Prof. Cook have to say, the more interesting it is. Mr. Miller writes nothing in GLEANINGS that I miss. JAMES PRATT.

Corning, Ia., Oct. 27.

BEES DID POORLY.

Bees did poorly in this part of the State. Many got no swarms, no surplus, and have to feed for winter. One of my neighbors with 40 colonies, spring count, will have to feed 800 lbs. of sugar or let his bees starve. I got 800 boxes from 30 colonies, spring count. My other yards I haven't counted up yet.

REV. JAMES ANDREWS.

Red House, N. Y., Nov. 16.

"DONE NOBLY."

Bees have done nobly this season. From 25 stocks I secured 2000 lbs. of honey, mostly of fine flavor. The flow from aster was not as profuse this fall as usual, on account of excessive dryness. However, I secured about 300 lbs. from that source. R. E. BEAUCHAMP.

Adairville, Ky., Nov. 13.

BEE-KEEPERS GETTING THICK.

One year ago there were scarcely any bees here; but now you can hardly throw a rock without hitting a bee-keeper. It begins to look as if this section would be overstocked soon with bees. Nearly all who are here are inexperienced; but the success of most the past season has been good. LOGAN K. RAYBURN.

Acton, Cal., Nov. 4.

BEES PAYING BETTER THAN FARMING.

I had 70 stands of bees, spring count; increased to 102, and got 5650 lbs. of comb honey, all in sections, all nice and white, except about 125 lbs. It pays better than farming.

Dover, Mich., Nov. 21. A. N. WHITLOCK.

THE ORIGIN OF BAMFUZZLE AND BUMFUZZLE.

In reading the proceedings of the California Bee-keepers' Association I was somewhat amused at the use of the word "bamfuzzle." I had almost forgotten it. I had heard it used many times when a boy, only it was called *bum* instead of *bam*fuzzle. Who the originator of the word was, I am not able to tell; but it was used in this way: When the old farmers got their cider made in the fall, and put into the barrels they would let it stand, and would say, "Let it bumfuzzle:" that is, let it work a little, and throw out and off the impurities. Some would let it bumfuzzle longer than others. The longer it bumfuzzled, the harder and stronger would be the cider. When it had bumfuzzled to suit the man's taste it was racked off, put into a clean cask, and tightly bunged up for winter; so the meaning of the word seems to be to *cleanse* or to *purify;* and perhaps the president was only doing his duty when he was trying to bumfuzzle them. There is a great deal of bumfuzzling needed in many places.

Atwood, Ill., Nov. 23. J. W. C. GRAY.

OUR HOMES AND MY NEIGHBORS.

Lord, remember me when thou comest into thy kingdom. LUKE 23:42.

While spending Sunday in the city of Lansing, Mich., I, of course, as is my habit, attended as many religious meetings as possible. During the afternoon I met some pleasant-looking young men on the streets, who were passing out cards. One of the cards read as follows:

"THE DETECTIVE."

A TALK FOR MEN
BY
CHAS. E. THOMAS,
SUNDAY, AT 4 O'CLOCK P. M.,
at the Young Men's Christian Association Rooms.

YOU ARE INVITED.—Social song service, and short talks every night during the week at 7:30.

At four o'clock I was promptly on hand for the address. The speaker was a converted lawyer. He handled his subject much as lawyers do in pleading a case. There is something wonderfully interesting to me in hearing a lawyer plead Christ's cause. They are accustomed to give their subject a certain *kind* of intense thought and study that we seldom meet among the clergy. His hearers were mostly young men. Toward the close of his discourse he gave us a thought that was new to me—at least he presented it so as to give one side of it I had never thought of before. I wish I could present it to you, dear friends, as he presented it to us on that Sunday afternoon; and may the Holy Spirit guide me as I undertake the task.

The theme was the crucifixion, as you will gather from the text. He called our attention especially to the two thieves on the cross. They were *both sinners*. In fact, one of them said as much; and Mark tells us that "they that were crucified with him reviled him;" Matthew tells us that the people were reviling him, and saying, "He trusted in God; let him have him now if he will: for he said, I am the Son of God." And then Matthew goes on to say further, "The thieves also which were crucified with him cast the same in his teeth." Finally one of the thieves, beholding the Son of God, and perhaps being impressed with his demeanor and his meekness under all his sufferings and cruel taunts, seemed to notice him more closely; and when his companion said, "If thou be the Christ, save thyself and us," he rebuked him, saying, "Dost thou not fear God, seeing thou art in the same condemnation?" And then he adds, "And *we* indeed *justly*, for we receive the due reward of our deeds; but this man hath done nothing amiss." You see, he acknowledged that their punishment was just; and this particular one, instead of railing at his persecutors—instead of finding fault with the laws of the land, and instead of blaming the Son of God for their cruel torture, he acknowledges the justice, and in the same breath confesses that *Jesus*, unlike *him* and his *companion*, is *innocent*. Finally, as he approaches death, in a very few simple words he makes a faint and feeble confession of Christ Jesus, acknowledging his power, and shows a glimpse of a feeble sort of faith. He *believes* in the Savior, and he *trusts* him, at least a little. At the same time he seems to have such a glimpse of his own grievously sinful life that he evidently does not expect *very* much nor seem to have very much *hope*. He turns and speaks to the suffering Redeemer, and says, simply, "Lord, remember me when thou comest into thy kingdom." He does not ask for pardon; perhaps he does not deem it possible that such a thing can happen; but he ventures to ask the Savior to *remember* him. He evidently has heard something of Jesus' *kingdom;* possibly he has heard others talk about this kingdom, even if he has not at some previous time heard Jesus himself speak. The reply of the Savior was as simple and brief as the confession of the penitent thief; but, oh what a promise was summed up in those few words—"Verily I say unto you, *To-day* shalt thou be with *me* in *paradise*"!

For many long years I have tried to think what a wonderful privilege it would be to be with the Savior, as the disciples once went with him here on earth. When I read of how Jesus called to the blind man, it has seemed to me as if I would rather hear his voice calling *me* than to have any other wish granted that this world or this *universe* has to offer. And this poor thief was honored with a promise of the privilege of being with Christ Jesus. Yes, and he was cheered amid his deathly agony by the promise that it should be done "*to-day*." And, finally, he was to be with him in *paradise*. All this was his reward for just those few words of *recognition* and of *acceptance*, and as a reward for that simple prayer, "Lord, remember me."

"Now," said the speaker, "we come to the point of this illustration. These two thieves were sinners—yes, hardened criminals. They confessed it, and did not dispute it. When one continued to rail and taunt the Savior, the other turned and defended him while he rebuked his companion. He turned from *crime* and *sin* to *Jesus* and *justice*. The two thieves had gone thus far through life *side by side*, but *now* they separate. A sharp dividing line comes between them. One confesses Christ, and asks to be remembered by him; the other one *dies* as he had *lived*." The speaker went on to say, "Dear brothers, the line that separated the two thieves separates us here to-night; and part of you, in your own hearts, decline to recognize the claims of the Son of God. You decline to ask him to be your help, your intercessor, your friend, your spokesman. Those of you on the other side of the line have chosen him—have believed in him, and are resting in his promises and in his willingness to save. Oh will you not —at least one of you—come 'over the line'* to-night?" Then he startled me by the thought that this very dividing line separates not only the audience embraced in one little room, but it separates and divides the whole wide world; and since that meeting I have had the thought in mind as I meet friends and acquaintances; and it seems to me I can pick them out one by one. Dear friends, is it not true? and are we not all on one side or the other? The Son of God has invited us all. He has said, "Come unto me, all ye that labor and are heavy laden." He has said, also, "Him that cometh unto me I will in no wise cast out." He attested his divine commission by the miracles in the olden time, and by more recent miracles of modern date. I mean these miracles that we see all round about us—these spectacles of penitent thieves and reformed men in every walk in life. A part of the world come to him, believe in him, and live and die trusting in him. Another part reject and scoff and ridicule, and find fault. Dear reader, can *you* not, as your eyes rest on this printed page, relent enough to say as did that poor thief on the cross, "Lord, remember *me* when thou comest into thy kingdom"? Oh how *easy* it seems to me, as I go about through the world, and meet men and women—yes, and little children—why should *they* object? why should anybody object to such a choice? There is something so inspiring in the thought of leaving the world with its trials and burdens, and coming to Jesus, that it animates me and wakes me up at just the thought of it. Oh how I do *long*—how I do *hunger* and *thirst* to hear people say, in the language of our text, "Lord, remember *me*"*!* One has to humble himself, I know; one has to acknowledge that he needs a Savior—that he is *not* all-sufficient in himself. Sometimes I think one needs to be in trouble. Again and again have I seen men and boys in jail. During the first few days they would lean back in their chairs with proud indifference, and say, "Well, they can keep me here just as long as they have a mind to. I think I can stand it to be boarded and lodged free of charge, just as long as they find any comfort and satisfaction in keeping me here." But as the days and the weeks and the *months* pass by, this proud spirit becomes subdued. I do not think that I have ever known *one* who did not sooner or later give up and beg piteously to be restored to liberty. One of these friends once said to me, "Mr. Root, I do not believe any human being ought under any circumstances to be punished as *I* have been punished here, by being kept in this prison with nothing to do." He was restless and wild, and he was stubborn and unyielding; but he was kept in close confinement with nothing to do and nothing to work at, and it finally broke his stubborn will. And so I think sometimes it needs *great trials*, *great losses*, and perhaps great *suffering*, to subdue us, to bring us to the point where we are willing to *ask* for help. Very likely it was a great trial to this poor thief; but his sufferings and anguish came and subdued him. Death was before him. There was no promise or hope of relief except *through* Christ Jesus. Is there any promise or hope for *you*, dear friend, outside of this "God-man"? Are you not *weary* of all that unbelief and skepticism have to offer? and are you not ready to accept that refuge? and can you not say, with the penitent thief, "Lord, remember *me* when thou comest into thy kingdom"?

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* Oh! tender and sweet was the Master's voice
As he lovingly called to me,
"Come over the line—it is only a step—
I am waiting, my child, for thee."

"Over the line," hear the sweet refrain;
Angels are chanting the heavenly strain:
"Over the line!" why should I remain
With a step between me and Jesus?

Help me, dear Savior, thee to own,
And ever faithful be;
And when thou sittest on thy throne,
Dear Lord, remember me.

NOTES OF TRAVEL

FROM A. I. ROOT.

ON THE WAY TO CALIFORNIA.

To-day is the 18th of November, and I have bidden the dear friends at home adieu, and am well on my way. God bless the children! When I kissed them good-by the tears began to come in their eyes; and when I got round to Maud, with the new baby, I had to hurry out of the house for fear I should cry too, and then there would have been *three* babies, and one of them *almost* 52 years old. Perhaps Maud, as she lay propped up with pillows, shut out from the busy world, had been wondering whether her busy pa would find time to just drop in and bid the new baby (just five days old) good-by. Shut *out* from the world, did I say? No, no; for, on the contrary, a new world is just *opening* to her through that baby boy; and may God give her grace, faith, hope, and charity, to guide the little frail bark aright. Dear reader, *whatever* you do, don't forget the daughter, wife, or sister, when she becomes a mother for the first time.

PURE WATER TO DRINK.

A lady on the cars gave me a thought which I wish to give you. Speaking of avoiding fevers, she remarked they had *two* cisterns. One was used only to catch the water after the roof had been well washed off, and it was filled entirely and only with the water that fell in the winter. No warm summer showers were allowed to go in to warm it up. Then the drinking-water all comes from *this* cistern, and it is drawn by a chain-pump with little buckets that *aerate* the water. Will Mrs. Root take notice?—*we* are going to have just such an arrangement. The water from this cistern is not only beautifully pure, but so cold that no ice is needed clear on until July. The other cistern furnishes water for washing and other similar purposes.

The Northwestern Convention at Chicago.

Our attention was first called to some sections of most beautiful white honey brought by Hilton, gathered from the

GREAT WILLOW HERB, OR PURPLE FIREWEED,

that covers acres upon acres in different parts of Michigan where the timber has been burned off. This plant seems always to yield honey. Tons upon tons of it go to waste every year. No whiter or prettier honey comes from any source in the world; and the only fault any one can find with it is, that it is a pure simple sweet, without any very distinct flavor of any kind.

BREAKING DOWN THE MARKETS BY RETAILING HONEY AT WHOLESALE PRICES.

Friend H. illustrated very forcibly the way in which honey-producers often spoil the markets. They reason thus: If they ship it to the city commission men, even if it sells for 16 or 18 cents after deducting for commission, freights, breakage, etc., they often get only about 13 cents, net cash, therefore they let it go to their nearest merchant or grocer for the same price. This establishes a price that commission merchants find it out of the question to compete with, and makes it very difficult for large honey-producers to get what they might otherwise, and to get, also, a good paying price for their product. When tons of honey are being sold in the cities for about 16 or 18 cents at *wholesale*, the bee-keeper should read the market reports, and charge his local grocer at least something near that. A remedy for this is to have a honey-buyer to look up the honey of good localities, and pay a proper price for it. Friend Hilton is at work at this very thing; and, while he pays producers all they ask, he gets a very fair margin for the trouble and risk in moving it into the cities, and at the same time keeps the price about where it belongs.

GETTING RAILROAD MEN TO UNLOAD HONEY WITH CARE.

Following close on the above comes the above. Many times, when the honey producer or buyer loads his honey on the car with the utmost care, packing it with straw, etc., after it has reached its destination in perfect order it is smashed up by being pulled out of the car in a hurry by the average railroad hands. On this account, many who send honey by the carload go along with it and superintend taking it off. This is, of course, expensive, and, in some cases, commission men will agree to be on hand when the car arrives, and look after the safe unloading.

Byron Walker says the failure of a Chicago commission house to look after three carloads of comb honey that he had shipped them cost him over $200. I know of at least one case where a railroad company paid damages for honey that was damaged during a transfer. Two commission men were with us at the convention, and gave us very material aid during our discussions. They were especially helpful in our discussions in regard to having some established and generally recognized rules for grading honey. Considerable time was spent on the matter, and the result was a set of rules which we hope to give in another issue. I believe our old friend M. M. Baldridge first outlined them, and the convention then argued and discussed them. R. A. Burnett and a representative of S. T. Fish & Co. gave material aid.

Quite a few reported honey-dew during the past season, very black and very poor. Some of it was sold as low as 5 cents per lb., and one lot went at only 2½ cents to a man who used it for making *cockroach poison*. There was some joking in regard to this new use for poor grades of honey. Friend Larrabee, of the Michigan Agricultural College, was present and gave us some account of his experimental work during the past season. Rape was tested to the extent of 8 acres; but, although it gave a profusion of blossoms, covered with bees, no honey, to be perceptible, could be found in the hives; but the bees gathered immense quantities of pollen from it. A large field of sweet clover is growing finely, but will not bloom until another year. An experiment to determine how many pounds of honey are required for one pound of wax seemed to indicate about 11 pounds.

DOES IT PAY TO CONTRACT THE BROOD-NEST FOR WINTERING?

The general testimony seemed to be that it did not; and especially was this thought to be the case where a hive containing only eight frames is used.

Division-boards for contracting the brood-nest during winter are now but seldom used, *especially* with eight-frame hives.

AN EXPERIENCE MEETING.

Perhaps no one feature of the convention contributed so much to the general interest as an exercise in which all took part. Our worthy president, Dr. Miller, suggested, on the afternoon of the first day, as soon as we had a pretty good general attendance, that we wanted to get acquainted with every bee-man present; and to accomplish this, each in his turn stood up, gave his name, State, postoffice address, then told us how many bees he kept, and what his crop of honey had been. There were to be no excuses nor exceptions; and before we got through, the merriment and friendly bantering got to be so general that every one present knew everybody else; and the result was, we were like a great family during a general reunion during the remainder of the session; and I take great pleasure in recommending this method of getting acquainted to conventions in general.

PREVENTION OF SWARMING.

This was, by universal consent, called as yet an unsolved problem.

A NOVEL METHOD OF FINDING QUEENS.

This was given by M. M. Baldridge. Have a light shallow cover, say two inches deep, that can be put over the frames of any hive; and a little drumming while this cover is on will get the queen with a few bees, up on the under side. By drumming one hive, then the next, and so on, and then going back to the one drummed first, you may secure a dozen queens in a very short time, without taking a comb out of the hive. This will work equally well with box hives having a hole or holes in the top. If you drive up only a teacupful of bees, the queen is pretty sure to be among them.

SHALL HONEY, LIKE MAPLE SUGAR, RECEIVE A BOUNTY.

This was discussed considerably. If the low price of cane sugar affects the maple-sugar industry, will it not also affect *our* industry? With a large yield of honey it might; but during the past season the price has kept up pretty well.

CURING COMB HONEY.

B. Taylor gave us an account of the way he ripens his comb honey by the heat of the sun, and the heat of a stove when the sun doesn't shine. Doolittle, you may remember, works in a similar way. When comb honey is taken from the hive when first capped, unless it is ripened, and the water well evaporated out of it in some such way, it is very apt to get watery and sour, and is not nearly equal in quality to honey that has had its looks injured by being left on the hive too long.

The presence of Mrs. Harrison, Miss Emma Wilson, Dr. Mason, Hon. J. M. Hambaugh, A. N. Draper, Mr. Abbott, of St. Joseph, Mo., O. O. Poppleton, of Florida, and a good many others, added much to the interest and profit of the convention.

ON THE ROAD AGAIN.

My country, 'tis of thee,
Sweet land of liberty.

The above lines come to me as I gaze over the prairies of Iowa. In Chamberlain's new book on tile draining he computes how many *acres* it took to sustain *one man* before civilization. Then he takes up the march of progress step by step, until now, when even a single acre may, by *agriculture*, give *many* people the necessaries of life. If I forget, and he did not make *quite* the last statement, *I* am going to make it in my part of the book. With this thought in mind, how many people might live where my eyes are looking so hopefully now! I *do* love these broad acres, and this land of liberty. I almost feel ashamed of myself for being so happy this morning. If I am tempted to feel that I am away off *alone*, some little incident reveals that my next neighbor among the passengers has read Gleanings, and feels it a pleasure to meet me. When I opened my eyes I knew we were in the land of snows, because of the great board fences on the north side of the track. A few miles further and we began to see snow on the ground, and now every thing is white. Snow-fences are seen only when the bank on the north side is higher than the track; and as there are here *two* great fences instead of one, I think we must be in a great region for snow. We are approaching the line between Iowa and South Dakota. Now all the trees are white with frost and snow, as well as the fields. Beautiful winter!

Within an hour the snow-belt was passed, and now we have bare ground again. So it seems that snows, like summer showers, may be more or less local in their character.

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

In the multitude of counselors there is safety.—PR. 11 : 14.

DON'T fail to take in the North American at Albany, Dec. 8 to 11, you bee-keepers of the East.

THE York State Bee-keepers' Association will meet in joint convention at Albany with the North American.

THE junior editor expects, in the near future, a visit from Dr. C. C. Miller, and W. Z. Hutchinson, of the *Review;* that is, they will stop off at Medina on their way to the Albany convention.

LETTERS and reports at hand indicate that the Northwestern at Chicago was a grand convention. Many important and vital subjects were discussed. See Dr. Miller's letter, and Notes of Travel, elsewhere, on this point.

THE family temper usually takes its tone from the parents; and if the father be harsh, grumbling, unappreciative, and the mother peevish, fault-finding, or discontented, how can the children be expected to regard home as the dearest spot on earth?—*Rural New-Yorker.*

IF there is any one of the new things in bee-keeping that is surely working its way into favor it is the bee-escape. We can not remember to have had an adverse report in regard to them. To be able to take off comb and extracted honey without shaking or brushing a bee is a great thing.

Bro. Newman, of the *American Bee Journal,* in commenting on the concessions granted to bee-keepers by Mr. J. T. Ripley, of the Western Classification Committee, says:

> Bee-keepers can generally get what they unite in asking for in the line of rulings of postoffice and railroad officials, etc., because they act like bees, and make such a "buzzing" about their ears that they are glad to accede to the demands.

WE regret to notice that Bro. Newman, of the *American Bee Journal,* is "enjoying" rather poor health. We know it's no joking matter, and hope for his speedy recovery to good health. It is a tremendous task to get out a weekly bee-journal year after year, and on time. One of the best tonics for a sick man is to let him know that his efforts to please his patrons are appreciated. If that's the case, tell him so when you renew.

A CORRESPONDENT in one of the bee-journals is very much disgusted with the practice current among apicultural writers of addressing each other "brother" or "friend," and urges that we are profaning the sacred use of the terms. Well, it may be the terms *are* used too indiscriminately, but we ask, Where will you find a more "brotherly" or "friendly" lot of people than among bee-keepers? Our bee-journals generally are conspicuous for the brotherly feeling, even toward rivals, that pervades them; and the times when strife used to be rife among them has gone by. "Brother" and "friend," when used by bee-keepers, *means* something.

THE following has been received from Secretary Dadant:

> *Friend Ernest :*—The Northwestern convention urges upon the North American convention the following discussions:
>
> *Resolved,* That, if the corn, beet, and maple-sugar growers are rightly entitled to a bounty of 2 cents per pound, the bee-keepers are entitled to the same, as all grades of sugar are in direct competition with honey.
>
> Also the resolutions passed by the Northwestern on grading honey, and sizes of packages.

The topics given in the program are not the only ones that will be discussed; but there is much to be done that is not down on the program.

DR. MILLER asks, in Straws, why we speak any more of the competition of California honey than we do of the New York or Illinois product. The honey of the Eastern States—that is, east of the Mississippi—of the same grade does not differ very much in price; but California honey is cheaper. While it is equal in body and color, and by some is said to be superior, it sells for a little less money, and hence it must necessarily compete with Eastern honey; and the effect, probably, is to reduce a small trifle the market price of it. Corn is produced more cheaply on the immense prairies than the same can be raised on smaller farms in the East; hence western corn competes with the eastern product—that is, it crowds the latter down to a lower price.

ONE of the things we ought to discuss at the North American at Albany is the securing of an appropriation from the national government so that our national organization may be a little better able to grant substantial benefits to its members, and to further the interests of apiculture in general throughout the United States. The Ontario Bee-keepers' Association, of Canada, as well as the Illinois State Bee-keepers' Association, has an appropriation. If any organization needs it, it is the North American. We throw the hint out now, so that we may be thinking it over and be ready to discuss the matter at Albany. Our treasury is not empty by any means; but its resources are so limited that the association can not do the good it might do with larger funds to back it from the pockets of Uncle Sam. We are to have the presence of Hon. J. M. Hambaugh, the one who secured an appropriation of $500 for the Illinois State Bee-keepers' Association. Doubtless he can outline the course for us to pursue.

THE products of the hive are commonly considered to be wax and honey; but the bee-sting poison is beginning to be another product. For one large establishment in pharmacy we filled an order for ten thousand bee-stings—yes, *ten thousand bee-stings* pulled out one by one. These were then thrown into a bottle containing sugar of milk. "Cruel!" you say. But it was for the cause of humanity; and, besides, the bees were immediately crushed out of existence after the removal of the sting, with a pair of forceps. We have also, on former occasions, filled several orders for the same concern, for 10 lbs. of live bees to be immersed in alcohol. We were instructed to pour the bees into a large bottle, shake them up, so as to arouse their ire, then pour alcohol over them. From both stings and from the bees is extracted a powerful medicine called "apis mellifica," though that from the stings must be more concentrated. Within the last few days we have had a call for *royal jelly*. The party who ordered it was willing to pay any price for two ounces of the pure article. We replied that it would be impossible for us to fill the order at this time of year so far north, and referred him to one of our queen-breeders in the South—Mr. J. D. Fooshe, Coronaca, S. C., who has undertaken to fill the order. Well, the products of the hive are three—possibly four: honey, wax, stings, and royal jelly, the two last being for medicinal purposes.

Our subscription list at this date is 10,305.

The 26th annual meeting of the Michigan State Bee-keepers' Association will be held in Grand Rapids, Dec. 31 and Jan. 1 next. We expect to be present at this convention. See program in next column. It promises to be a good one.

MAKE YOUR WILL.

Yes, everybody should make one as soon as he is of legal age. If you haven't any thing to will, after you have made a will you will be more likely to scratch around and have something; and especially should every married couple make their wills. You can not begin too early, and you can begin too late, for hardly a day passes but that we see some sad consequences just because "he didn't make a will." You may think that you haven't property enough to bother with; but, my dear friend, everybody is liable to have property. Funny, isn't it? Well, if you do not make a will, the courts and the lawyers will take quite a slice of your property, and what there is left will likely be tied up in such a way that your wife can have the benefit of but a small part of it, no matter how badly she needs it. Every Christian should make a will; but I am afraid that Christians are as careless and unfeeling in this matter, oftentimes, as other people. I suppose that, in the majority of cases, you would prefer to have your wife take charge of every thing, and stand in your place; and she can do this without lawyers or courts if you just leave a little scrap of paper, saying, "I leave every thing to my dear wife." If more children are likely to come to your home, some mention or provision should be made for them in the will. Your lawyer can tell you just how to do it. So you see I am beginning to feel friendly toward the family lawyer as well as toward the family physician. It is a little funny, is it not? But don't you think it indicates that I am beginning to be a broader and better man than I have been? Never mind; get right at it and make your will this minute, if it is not done already.

CONVENTION NOTICES.

The Eastern New York Bee-keepers' Association will meet with the North American, at Albany, Dec. 8 to 11.
Fuller's Station, N. Y. W. S. Ward, Sec.

The Illinois State Bee-keepers' Association will hold its annual convention at Springfield, Ill., Dec 16 and 17, at the Capitol building. We have the promise of reduced rates on the Chicago, Alton & St. L. R. R., and expect low rates on all the roads running into Springfield. We have special rates at the St. Nicholas Hotel, of $1.50 per day, where two occupy one bed. A good program is expected. J. A. Stone, Sec.
Bradfordton, Ill.

The Michigan State Bee-keepers' Association will meet in Grand Rapids, Mich., on Thursday, Dec. 31st, 1891, and Friday, Jan. 1st, 1892. G. E. Hilton, Sec., Fremont, Mich.

PROGRAM.

Morning session, Dec. 31, 10 A.M. Secretary's report of last meeting. Appointment of committees. Reception of members. Adjournment.

Afternoon session. Annual address, by Pres. R. L. Taylor. The Best All-purpose Brood-frame. J. H. Larrabee, Agricultural College, Mich. The Bicycle vs. the Horse, for Out-apiary Trips. E. R. Root, Medina, O. Question-box. Reception of members. Adjournment.

Evening session, 7 o'clock. Bees, Poultry, and Fruit. J. A. Pearce, Grand Rapids, Michigan. Trying New Things. W. Z. Hutchinson, Flint, Mich. Question-box. Adjournment.

Jan. 1, 9 A.M. Cellar vs. Outdoor Wintering. A. J. Acker, Martiney, Mich. What business can be profitably combined with Bee-keeping? Wm. E. Gould, Fremont, Mich. Cause and Cure of Foul Brood. Dr. A. B. Mason, Auburndale, O. Question-box. Reception of members Adjournment.

Afternoon session, 2 o'clock. The Uses and Abuses of Foundation. M. H. Hunt, Bell Branch, Mich. Carniolan Bees. H. D. Cutting, Clinton, Mich. Deciding place of next meeting. Election of officers. Reports of committees. Financial report of secretary. Miscellaneous business. Adjournment.

PROGRAM

of the North American Bee-keepers' Association, to be held in Agricultural Hall, Albany, N. Y., Dec. 8 to 11.

FIRST DAY—TUESDAY, DEC. 8.

Informal meeting in the evening.

SECOND DAY—WEDNESDAY, DEC. 9.

9 A. M.—President's Address.—P. H. Elwood, Starkville, N. Y.

Appointment of Committees, and routine business.

10:30 A. M.—Some of the Newer Races of Bees.—Frank Benton, Washington, D. C. Discussion. Question-box.

2 P. M.—The Prevention of Swarming.—W. F. Clarke, Guelph, Ontario, Canada. Discussion: The Prevention and Control of Swarming.

3:30 P. M.—The Italian Bee. What are the principal points of excellence, and to which qualities should we give the preference with a scale of markings as for neat stock?—G. H. Knickerbocker, Pine Plains, N. Y. Discussion. Question-box.

7:30 P. M.—The Outlook for Apiculture at the Columbian Exposition.—A. B. Mason, Auburndale, O. Discussion.

THIRD DAY—THURSDAY, DEC. 10.

9 A. M.—Election of Officers. Selection of next place of meeting. Business of the Association. Volunteer contributions.

10:30 A. M.—Discussion: Prices and uses of Honey and Sugar. Question-box.

2 P. M.—Can we settle upon two sizes of sections as standard? —C. C. Miller, Marengo, Ill. Discussion: What the Market demands for Packages and Grading. To be participated in by honey-merchants and bee-keepers.

3:30 P. M.—Discussion: What ought the Department of Agriculture to do in Apiculture? Question-box.

7:30 P. M.—The Bees, the Location, and the Apiarist.—G. M. Doolittle, Borodino, N. Y. Discussion: Should Bee-keeping be made a Specialty?

FOURTH DAY—FRIDAY, DEC. 11.

9 A. M.—Some facts not generally known about rendering beeswax.—R. F. Holtermann, Brantford, Canada. Discussion: Rendering and Purifying Beeswax, and Making Comb-foundation Sheets.

10:30 A. M.—Report of Committees, and unfinished business. Adjournment.

HOTEL RATES.

Globe Hotel, $2.00 per day. American Hotel, $2.00 per day. Cox Bros., No. 4 Williams St., $1 00 per day (temperance house). W. H. Keeler, 488 Broadway, European plan Rooms, 50, 75 cts., $1.00. Kimball House, 69 Washington St., $1.00. Merchant's Hotel, 497 Broadway, $2.00. I. Keeler, Restaurant, 56 State St., Odel Restaurant, 94 State St.

REDUCED RATES ON RAILROADS.

One and one-third regular fare for round trip. The concession is for delegates and others going to Albany to attend the North American Bee-keepers' Convention, Dec. 8—11, 1891, from the following described trunk-line territory:

By the Central Traffic Association from St. Louis, and nearly all points in Illinois, Indiana, Ohio, Pennsylvania, as far east as Pittsburg; New York, as far east as Salamanca; and Ontario, Canada, as far north as Toronto. By the Trunk Line Association, which includes the remainder of New York, Pennsylvania, and New Jersey; and the Southern Passenger Association, which includes all the principal roads in the Southern States.

Bee-keepers from Vermont can obtain reduced rates over the Delaware & Hudson Canal Co. R. R., which can be conveniently taken at Addison Junction or Ticonderoga, N. Y., or at Rutland, Vt.

INSTRUCTIONS TO PERSONS ATTENDING THE MEETING.

1. The concession is for delegates and others going to Albany from any of the above described trunk-line territory.
2. If the startingpoint is located on some small road, or one not in either one of the three trunk-line associations making the concession, tickets should be purchased only to the most convenient place where a trunk-line certificate can be obtained, and thence by direct routes only, through to place of meeting.
3. The going ticket must be purchased within three days before, or not more than three days after, the opening date of the meeting, otherwise no reduction in fare will be made on the return passage.
4. Each person availing himself of the concession will pay full tariff fare going to the meeting, and get a certificate filled in on one side by the agent of whom the ticket is purchased. (The agents keep the certificates in stock.)
5. Present the certificate to the secretary at the meeting, that the other side may be filled in. Certificates are not transferable.

6. On presentation of the certificate, duly filled in on both sides, within three days (Sunday excepted) after the adjournment of the meeting the ticket agent at Albany will return the person to his starting-point at one-third regular fare. The return ticket will be issued over the route used in going to meeting, and will be available for continuous passage only.

VERY IMPORTANT.

7. It is absolutely necesary for each passenger, before starting, to obtain a certificate from the ticket agent at the point at which the going ticket is purchased, otherwise said passenger will be unable to obtain special rate for return journey, and will be obliged to pay full tariff rates in both directions.

8. Delegates, and others availing themselves of the concession, should present themselves at the office for certificates and tickets at least thirty minutes before the departure of trains.

9. Every person attending the meeting should get a certificate, no matter how short the distance, as, the more certificates are signed at the meeting, the easier it will be to secure reduced rates another year.

BEE-KEEPERS, NOTICE!

On account of not getting suitable situation to build a factory at Thornton, I have located 5 miles east of that place, at Independence, Preston Co., W. Va., where I have just completed a new factory, at which place I can furnish bee-supplies on short notice. Illustrated catalogue and price list free.

E. J. SHAY, Independence, Preston Co., W. Va.

Please mention this paper. 23tfdb

FOR SALE CHEAP.—A second-hand Barnes saw. JAS. E. HERSHBERGER, Grantsville, Garret Co., Md.

WANTED.—To exchange a good paying job for some of your spare time this winter; also a Goodspeed & Wyman gauge lathe, for a pony planer, or "Our Domestic" clothes-drier (see page 800, Oct. 15), for extracted honey.

D. S. HALL, So. Cabot, Vt.

FOR SALE OR EXCHANGE.—150 half-depth closed-end-frame hives, with follower and wedge and starters ready for the bees; also a lot of bee books and papers, for extracted honey, or offers.

PHILIP H. HAMILTON, Paris, Ont.

SPECIAL NOTICES.

HARMONY OF THE GOSPELS.

You can not imagine what a help this is in studying the Sunday-school lessons, or in any study of the life of Christ. The four gospels of Matthew, Mark, Luke, and John, are arranged in parallel columns, so that you can see on the same page, without hunting it up, just what each writer has to say on a given event. It is neatly bound in cloth, and quite full of explanatory notes. Price 35 cents. By mail, 5 cts. extra. Given free postpaid for one new subscription with your own renewal.

NOTES OF TRAVEL.

Three years ago, when Uncle Amos went west, many became so interested in his notes of travel that they subscribed for GLEANINGS mainly for these notes, although not interested in bees or bee-matters. The notes of travel which begin in this number bid fair to be still more interesting than the former series. He will be gone longer, and will make many more stops by the way; will visit many places not included in the first trip. Moreover, he has taken the Kodak along, and some views will be given later on. This attractive feature of GLEANINGS, that will doubtless continue for the next four or five months, ought to help make it easy to obtain new subscribers among your neighbor bee-keepers. If there are those who would like to have GLEANINGS simply for the notes of travel, we will make a special offer of this last month of this year and the first four months of next year—that is, from now until May first, for 40 cents. If you wish the journal stopped at the end of that time, please so request in making the order; otherwise it will be continued till ordered stopped and arrearages paid. We will send a club of three five-months' subscriptions for $1.00, or five for $1.50. No premiums allowed on any but full-year subscriptions. The above club rates will give club-raisers a nice margin for their trouble. If you appreciate our efforts in trying to make GLEANINGS interesting and helpful, we trust you will help spread its influence and reward us with a goodly addition of new readers.

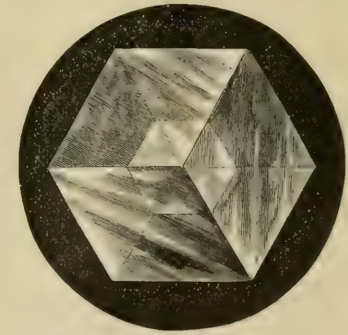
DOVETAILED HIVES, 1890 PATTERN.

We still have on hand nearly a thousand hives of last year's pattern that we had made up and packed ready for shipment before we decided on the changes in the hive. There are some 400 No. 1E, and 600 No. 2E. All of them, with the exception of about half of the No. 1E, are just like those we have been sending out the past season, with thick top-frames, except that they are ½ inch narrower, leaving no room for the follower and wedge in the super or division-board in the brood-chamber. There are many who do not care for these extras who would not bother with them for the extra convenience they afford. We have been using, in our apiary, side by side, some of these hives, together with the new ones ½ inch wider, and have experienced very little inconvenience. We don't like to have these in our way, with danger of their getting mixed with the new hives in filling orders. To make an extra inducement to clean them out quickly, we offer them at the following prices, which are 25 per cent lower than present prices of the regular pattern. We would rather sell them below cost than keep them any longer. We will allow the same quantity discounts and early-order discounts and dealers' discounts on these prices that we do on our regular list.

5 No. 1E, 1890 Dovetailed hives in flat	$3 25
10 " " " " " "	6 00
5 No. 2E, " " " "	4 00
10 " " " " " "	7 50

Complete with sections, separators, and foundation starters for sections, add 15c each to No. 1E, and 30c each to No. 2E. This will include wood (not tin) separators. Tin separators, 5c extra on each super. There surely was never as good a hive offered for any thing like such a price, and they ought not to remain here long at this rate. It is needless to say we will make no more when these are used up.

DODECAHEDRON PAPER-WEIGHTS.



A year ago we made a special importation from Germany of 1000 of the beautiful glass paper-weights of which the above is a very poor representation. Nothing would be more appropriate for a bee-keeper, as it illustrates the mathematics of the honey-cell to perfection. It is such a beauty that anybody will be pleased and delighted with it. No matter which way you turn it, you will be charmed by new beauties. The above cut gives the actual size. When we found it in Chicago it was retailing at 50 cents; but buying 1000 of them we got them at a figure that enables us to sell them at 20 cents each, or 6 for $1.00; one dozen for $1.80. By mail, 3 cts. extra on one; 12 cts. extra on 6, or 20 cts. extra per dozen for postage, and packing to prevent injury. We will send one free postpaid for a new subscription to GLEANINGS with $1.00; or for a new subscription, with your own renewal, with $2.00, and 5 cts. for postage, we will send two; or, if you prefer, we will send one and a copy of any of the following books, you paying postage (5 c.): Merrybanks and His Neighbor; Stepping Heavenward; Christian's Secret of a happy Life, paper; Robinson Crusoe, paper; or any of the following, and we will pay postage; Revised New Testament; Ten-cent Dictionary; Child's One-syllable Primer.

LITTLE PINE BOARDS.

We still have a plentiful supply of those little pine boards, about ⅛x3x8 or 9 inches long. We offer them at 20c per 100, or 600 for $1.00.

EARLY ORDER DISCOUNT.

Remember that, during this month, the discount for early orders is 4 per cent, and applies to pages 10 to 27 of our catalogue. Business has been quite brisk the past two or three weeks, with orders from those who took advantage of the 5 per cent allowed before this date.

POSTAL GUIDE FOR 1892.

We use half a dozen Postal Guides in our office; and by taking so many we can offer them clubbed with GLEANINGS at a reduction. The cloth-bound Guide sells for $2.50. We will furnish one prepaid, with GLEANINGS one year, for $3.00, or the paper-bound book for $2.50. Send your orders in at once, to avoid delay in delivery. We can furnish a limited quantity of old Guides that have been used one year, at $1.00 each. Postage 15 cents extra.

ARE YOUR CATALOGUES PRINTED YET ?

Our facilities were never better for doing apiarian catalogue work. We probably have the largest assortment of cuts, illustrating bee-supplies, of any establishment in the world. Before you send your catalogue out to be printed, write to us for samples and prices. Those who sell our own goods have the free use of all our cuts. Don't put off your catalogue printing till it is too late. It is the early bird that catches the worm. We are in position now to give you prompt service.

CHRIST BEFORE PILATE.

This is the subject we have all been studying in our Sunday-schools the past week. It is also the subject of a very fine painting by Munchaski, which has created a world-wide sensation, and of which there have been many copies made. You will remember that, two years ago, we offered in our premium list one of the best of these reproductions. We still have a few of these left, which we offer, as long as they last, at 40 cents each, postpaid, or with other goods, or given free, postpaid, for one new subscription to GLEANINGS sent with your own renewal and $2.00. It is a wonderfully suggestive help to the study of the Sunday-school lessons we are now having.

THICK-TOP BROOD-FRAMES WITH DIVIDED TOP.

In making up thick-top frames we get on many boards a piece not wide enough for a top-bar, but which will make half of one. Two of these halves make what we call a divided top-bar, which many use and prefer. In putting the frames together, a piece of foundation can be placed between the two halves, to fasten it. Many go to the expense of having top-bars split from one end nearly through to the other for the purpose of inserting the sheet of foundation when these divided tops would answer just as well, and can be furnished much cheaper. Since we began saving the pieces as above we have an accumulation of several thousand thick-top frames with these divided tops more than we have had calls for. Our regular thick-top frames sell for $1.50 per 100; but to close these out we offer them at $1.20 per 100, or $2.75 per box of 250; 500 or more at $1.00 per 100, in the flat, without comb-guides. If you want wooden comb-guides, add 10c per 100. Most of them are packed 250 in a box.

SOME TYPEWRITERS AT A BARGAIN.

We have, for the last two or three years, been using exclusively the Remington typewriters in our office, for we believed them, all things considered, the most durable. Besides, there is an advantage in having machines all of one kind, so that any of our operators can use any of them without learning a new keyboard. Something over a year ago the Hammond typewriter came out with what they called the Universal keyboard, by means of which a person who was accustomed to operating the Remington, for instance, could have a Hammond with keys arranged in the same way, and use it without learning over again. After examining the Hammond machine we were so much pleased with it that we have secured one for our use. Dr. Miller and G. M. Doolittle both use the Hammond, deciding on that after a careful examination of other makes. The regular price of a new Hammond is $100; but we have got track of two machines, one with the Ideal and the other with the Universal keyboard, both practically new, and in first-class order, that we can sell for $75 each cash, if unsold on receipt of order. Here is a rare chance for some one. We have also an old-style Remington No. 1, which writes all small caps, *like* THIS, which we offer for $25. There is probably more wear in one of these old No. 1 machines than in any other typewriter ever made. We have had this one in use almost ten years, yet it does good work, and, with proper care, will do good work for years to come. We prefer a machine with both caps and small letters, hence we offer this for sale at the above price, which makes it a bargain.

We have also on hand three of the old-style single-case World typewriters in good condition, that we will close out at $5.00 each. Regular price is $10.00, and these are practically new machines, although they have been in stock for some time. Further particulars, and samples of work, furnished to intending purchasers on application, if not previously sold. We apprehend that, at these prices, they will be snapped up quick.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand foundation-mills in stock that some may rather have at the price than a new one. Of course, we'd rather sell you a new machine than one of these, and think, also, that it would give better satisfaction usually; still, for those who wish to make only for their own use, or in limited quantities, one of these machines will probably do you as well as a new one. We have quite an assortment to choose from, and the list will be corrected as they are sold. The earliest orders will have the best choice.

One 6-inch mill, latest pattern, for thin or extra thin surplus foundation, hexagonal cell. This has been used in our wax-room till the rolls have become pitted with little holes and imperfections that show slightly in the foundation, so it does not look quite as well as that from a new machine, but is just as good for use in the hive. A new machine this size sells for $15.00. We offer this for $7.00.

One 6-inch that answers to same description as above, but in slightly better condition. We offer this for $8.00.

One new 10-inch Pelham mill, latest pattern for heavy brood foundation. We took this in exchange for other goods from a customer who changed his mind before he had used it at all. It is new, and in perfect condition. Regular price, $15.00. We offer it for $11.00.

One old-style 10-inch, our make, with round cell, for medium brood foundation; has been used very little, and is as good now as a new mill at the time this was made, although not to be compared with our present make. A new mill of this size sells for $20.00. We offer this for $12.00.

One 10-inch, which answers to the same description as above, but made later, and is a little better machine. Will sell for $14.00.

One 12-inch, hexagonal cell, light-brood mill of recent make that we have used in our wax-room for light brood, and which will make thin surplus about 10 ft. to the pound. It is the same style and build as our regular 10-inch machine, except that it is two inches wider. We offer this for $15.00.

One 12 inch hexagonal cell, medium or heavy brood mill of the original Washburn make, and in excellent condition. If wax is dipped the right thickness this will make excellent foundation. I believe it originally sold for $50.00. We offer it now for $17.00.

One 12-inch Dunham round-cell heavy-brood mill. This was originally used by the Dadants, and will make good foundation yet. We offer it for $18.00.

One 12-inch Dunham round-cell heavy-brood mill, in excellent condition. We took this from E. France & Son, in exchange for a new mill to make lighter foundation more feet to the pound. Their only objection was that it made foundation heavier than they wished to use. Its condition is practically as good as new, although it makes foundation about 4 feet to the pound unless the sheets are dipped thin enough to make it lighter. We offer this for $20.00, which is two-thirds the price of a new machine this size.

If any prefer we can submit samples of foundation from any of these machines before you buy. We shall be pleased to send samples from new machines if you would rather have that kind.

FLORIDA ORANGES,

And here is where you can raise them.

AT 1-2 PRICE, in 5 and 10 acre lots, for cash or on long time, one-third of a 300-acre tract of one of the choicest pieces of natural orange land there is in the State, being Rich, Heavy, High, Gray Hammock; 2½ miles from railroad, healthy section, pure water, good roads, clear title. For particulars, address 23-24d

A. F. BROWN, HUNTINGTON, PUTNAM CO., FLA.

Please mention this paper.

Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Send 6c. for Illus. Catalog. **GEO. H. STAHL, Quincy, Ill.**

Please mention this paper.

BEE - HIVES ! SECTIONS !

AND ALL APIARIAN APPLIANCES.

Our Motto: Good Goods and Low Prices.

Catalogue free for your name on a postal card.

LEAHY M'F'G CO.,
14tfdb ***HIGGINSVILLE, MO.***

Please mention this paper.

BEE-KEEPERS, NOTICE!

On account of not getting suitable situation to build a factory at Thornton, I have located 5 miles east of that place, at Independence, Preston Co., W. Va., where I have just completed a new factory, at which place I can furnish bee-supplies on short notice. Illustrated catalogue and price list free.

E. J. SHAY, Independence, Preston Co., W. Va.

Please mention this paper. 23tfdb

I MAKE THE

Benton Shipping and Introducing Cage

in two styles, at $10.00 and $20.00 per 1000. I am sending them all over the country. The largest queen-breeders are using them, and are enthusiastic in their praise. Send your order now, and get 5 per cent discount from above prices. A full line of

BEE-KEEPERS' SUPPLIES

always in stock. Catalogues free. 17-21d

C. W. COSTELLOW, WATERBORO, YORK CO., ME.

☞In responding to this advertisement mention GLEANINGS.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.

The oldest, largest and cheapest Weekly bee-paper

THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines, Iowa, at **Root's Prices.** The largest supply business in the West. Established 1886. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

3tfdb

☞In responding to this advertisement mention GLEANINGS.

VIOLINS GUITARS MANDOLINS

MUSICAL GOODS OF ALL KINDS.

MURRAY & HEISS. CLEVELAND OHIO.

CATALOGUE FREE

☞In responding to this advertisement mention GLEANINGS.

MUTH'S

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-Hives
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

Please mention this paper.

For Sale, Portable Engine on Wheels

8 H. P., in good repair. Will sell AT A BARGAIN if taken at once. Address

LOWRY JOHNSON, Masontown, Pa.

☞In responding to this advertisement mention GLEANINGS.

N. A. KNAPP, Rochester, Lorain Co., O.,

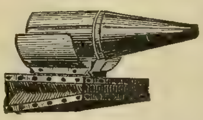
HAS FOR SALE

50 STRONG COLONIES OF PURE ITALIAN BEES,
500 WHITE AND BLACK FERRETS.

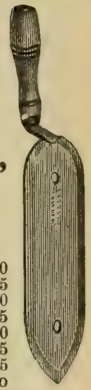
Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

Please mention this paper.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	$2.00
Conqueror "	3	" "	1.75
Large "	2½	" "	1.50
Extra (wide shield)	2	" "	1.25
Plain (narrow ")	2	" "	1 00
Little Wonder,	1¾	" "	65
Uncapping Knife.....			1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange standard apiarian supplies, Dadant's foundation, etc., for **2 FOUR-horse-power STEAM-BOILERS.** *Must be in splendid condition.* Also would like light power BAND-SAW or JIG-SAW. Write quick.
CHAS J. GOODRICH, Box 1156, Pittsfield, Mass.

WANTED.—To exchange 3 saw-tables, shafting, and belting, for bees on L. frames.
GEO. H. KIRKPATRICK, Union City, Ind.

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—A good Christian housekeeper without incumbrance, to keep house for a family of three adult persons. 22-23d
J. L. CLARK, Apalachicola, Franklin Co., Fla.

WANTED.—To exchange a good paying job for some of your spare time this winter; also a Goodspeed & Wyman gauge lathe, for a pony planer, or "Our Domestic" clothes-drier (see page 800, Oct. 15), for extracted honey.
D. S. HALL, So. Cabot, Vt.

WANTED at once. A lady to assist with housework, and bees in the summer. Steady employment to the right party. Residence in village. Address with ref., ELIAS FOX, Hillsboro, Wis. 24-1d

WANTED.—To exchange for honey or offers, Victor Safety bicycle, in No. 1 condition, Barnes foot-power saw, Stanley automatic honey extractor, new; No. 5 Novice extractor, 4¼x5½ photographic outfit; queens, to be sent next season.
24tfdb J. A. GREEN, Dayton, Ill.

WHAT will you give in exchange for a new foot-power buzz-saw? Home-made but well made.
H. L. HUTCHINSON, Mayville, Tuscola Co., Mich.

WANTED.—To correspond with parties having R. C. W. or B. Leghorns for sale.
F. E. PRICE, Nokomis, Mont. Co., Ill.

WANTED.—A position in an apiary. Or to run an apiary on shares. South preferred. Eight years' experience. J. E. HENDERSON,
Roney's Point, Ohio Co., W. Va.

WANTED.—To exchange nursery stock for any thing useful.
GEO. GOULD & SON, Villa Ridge, Ill.

WANTED.—Situation in apiary for season of '92, with an experienced apiarist, to learn more of apiculture. Have handled bees in Ohio for two seasons back. HOWARD W. AULD, Newburgh, Oregon. References, Hill Mfg. Co., Dennison, Ohio; P. M., Tippecanoe, Ohio.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
In writing advertisers please mention this paper.

Syracuse, New York,
FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.
FOUNDATION is Our Own Make.
F. A. SALISBURY.
In writing to advertisers please mention this paper. 4tfdb

SPECIAL NOTICES.

DEALERS IN BEE-KEEPERS' SUPPLIES.

Those who handle bee-keepers' supplies, buying to sell again in their vicinity, or who issue a catalogue and fill orders from a distance, will do well to write to us for our inducements before closing arrangements with any one for the sale of their goods. We have in preparation some things to help you make it known to the bee-keepers in your vicinity that you can supply them, and thus add to your sales as well as to the convenience of those who look to some one to order for them from the manufacturer. These things in preparation are not yet completed, but we give you notice, so you can write; and when they are ready you can be notified.

OUR NEW PRICE LIST FOR JAN. 1, 1892.

Before the next issue of GLEANINGS is mailed we hope to send to each of of our readers a copy of the 74th edition of our price list. Among other changes that will be noted we mention the following. The matter on bees and queens has been rewritten, and a new table of prices is given, quoting lower prices in many cases. The new shipping-boxes for bees deserve notice. In queen-cages we have thrown out the Peet entirely, and list only the improved Benton. The West queen-cell protector and Miller's introducing-cage are given for the first time in our list. We call especial attention to Coggshall's bee-brush, which far surpasses any thing before used for the purpose. It is an extra long, broad, and very thin whisk-broom made of selected broom-corn, and will take the bees off the side of a comb at one sweep.

We catalogue the Porter bee-escape, as we believe it to be the best so far produced. We are prepared to furnish these to dealers at the manufacturer's wholesale prices, which we will quote on application. Bushel boxes have been included in the list. The price of bee-veils and material has been quite a little reduced. The improvements in hives and frames are noted elsewhere in this issue. You will find the price of wire nails very much reduced. The old series, E long-wind Waterbury watch, has been dropped out of our price list, as we no longer furnish it. Instead you will find Root's household repairing outfit, which is proving a great money-saver in the homes of many who have more time to do their own mending than money to pay for having it done. The price of lawn-mowers is also reduced. You will note other changes in our list.

DO YOU WANT GLEANINGS CONTINUED?

With this number, the paid subscriptions of a great many of our readers expire. The date on the label on the wrapper of the journal tells you when the time paid for is up. Those whose subscription expires with the present number should receive, in their copy of GLEANINGS, a printed notice of expiration, and an order-sheet and addressed envelope for renewal. If you wish GLEANINGS continued we shall be pleased to receive your renewals; or if it isn't convenient to send the amount now, please fill out the blank, stating when you will send it, and we will know what your wishes are. If you do not want it continued, please do not fail to notify us, for we continue the journal until we receive orders to discontinue. We adopt this method because the majority seem to prefer it. There are a few who do not like it, and have written some rather severe things about such a practice. Now, our plan is such that we can please every one. If you do not want your subscription to continue after the time paid for, all you have to do is to say so when you send your order and it will be marked with a "D," and will be dropped when the time paid for is up. Inasmuch as the majority prefer to have it continued, it doesn't seem fair to put the majority to inconvenience to please the minority when they can so easily have their wish complied with. If any of our readers, even though their subscription has not run out, prefer to have it stop when the time paid for is up, write us a postal card, saying so, and we will mark your name, that there may be no room for misunderstanding or hard feelings; and remember, if you allow the matter to run along without notifying us until you get in arrears, we are entitled to all arrearages before the journal may be stopped. We have no desire whatever to send GLEANINGS to any one who does not want it, but we do want to continue sending it to those who do want it; and we ask you to be careful in sending in your subscriptions and renewals, to make known what you wish.

HONEY COLUMN.

CITY MARKETS.

PORTLAND.—*Honey.*—Price of comb ranges from 12@14½ and 15c, as to color. Extracted ranges from 5½@6¾. The bulk of our supply comes from California. We lack practical bee-men in Oregon. We need apiarists in the fullest sense of the word. Oregon ought to be one of the finest honey-producing localities in the world. It rains considerably here in winter; yet here it is Dec. 8, and roses are in bloom *out of doors;* and on Sunday, Dec. 6, we saw cultivated blackberries and strawberries in bloom.
LEVY, SPIEGL & CO.,
Dec. 8. Portland, Oregon.

CINCINNATI.—*Honey.*—Demand for honey is fair only; supply is good of all kinds but choice comb honey, which brings 14@16c in the jobbing way. Extracted honey brings 5@8c on arrival. *Beeswax,* demand is fair at 23@25c on arrival for good to choice yellow.
CHAS. F. MUTH & SON,
Dec. 8. Cincinnati, O.

CHICAGO.—*Honey.*—Trade has been active, and sales of best white comb readily made at 16c. Extracted is also selling freely at 7c. Stocks are light, and we look for steady market.
R. A. BURNETT,
Dec. 8. 161 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Demand poor. Supply large of comb; 1-lb. fancy white, 15@16; dark, 12@13. Extracted, light demand; supply light; white, 7@7½; dark, 5@6. *Beeswax,* none on the market. Weather mild, with light trade.
HAMBLIN & BEARSS,
Dec. 11. 514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—Of comb honey, we have only odds and ends left for which there is a very slow sale, and low prices must be accepted now, in order to dispose of these lots. Extracted light amber California, 7½c; Florida, best grades, 7@7¼c; buckwheat, 5½@6¼. *Beeswax,* 27@28½c.
F. G. STROHMEYER & CO.,
Dec. 9. New York.

ALBANY.—*Honey.*—There is a large falling off in the demand for comb honey, and prices less firm. Extracted in good demand with prices unchanged. We quote fancy white 1-lb. sections, 13@14c; fair to good, 10@12c; buckwheat, 9@10. Extracted, 6@8c. *Beeswax,* 24@26.
CHAS. MCCULLOCH & CO.,
Dec. 11. Albany, N. Y.

MILWAUKEE.—*Honey.*—The demand for honey is very fair and the supply is good yet; of the finest section, not enough. Apiarists should remember that choice qualities are appreciated in this market. Common and poor goods always move slowly. Will quote choice 1-lb. sections, 15@16; dark and off qualities, 10@12½. Extracted, white, in bbls. and kegs, 7½@8c; dark, 6@6½. *Beeswax,* 23@28.
A. V. BISHOP,
Nov. 25. Milwaukee, Wis.

NEW YORK.—*Honey.*—Market is dull, with a sufficient supply to meet all demands. We quote honey this day as follows: 1-lb. sections, fancy white, 14c; 2-lb., 12c; 1-lb., fair, 11@12; 2-lb., 10@11; 1-lb. sections, buckwheat, 10@10½; 2-lb., 9. Extracted honey, basswood and clover, 7@7½; buckwheat, 5½@6. *Beeswax,* fine, 26@27c.
CHAS. ISRAEL & BROS.,
Dec. 9. New York.

DETROIT.—*Honey.*—The supply of comb honey is not large, but sales are slow and prices are not what they should be; it is selling at 11½@13c, with occasionally a choice lot at 14. Extracted, 8c. *Beeswax,* 25@26c.
M. H. HUNT,
Dec. 9. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—Receipts and demand are fair. 1-lb. white comb, 15@16; dark, 10@12. Extracted, white, 7@7½; dark, 5@6. *Beeswax,* receipts light, 23@26.
CLEMONS, MASON & CO.,
Dec. 9. Kansas City, Mo.

CHICAGO.—*Honey.*—Good demand for fancy white honey at 16c. Other grades slow sale, 12@14c. Extracted selling 6½@7½, with as yet light demand. *Beeswax* selling 26@27c.
S. T. FISH & CO.,
Dec. 8. 189 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—Our market is well supplied with honey. Selling from 14@16c for 1-lb. sections. Extracted, 7@8c. *Beeswax,* none on hand. Demand good.
BLAKE & RIPLEY,
Dec. 9. Boston, Mass.

ST. LOUIS.—*Honey.*—There is little of an encouraging nature to report in regard to the honey market. The trade is very quiet, and prices unchanged.
D. G. TUTT GRO. CO.,
Dec. 9. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey is getting very scarce, and, in consequence, firmly held. We quote 6@6½c. Comb honey also not so plentiful, and firmly held at 11@13. *Beeswax* scarce at 24@25. @24c.
SCHACHT, LEMCKE & STEINER,
Nov. 27. San Francisco, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE CHEAP.—10 bbls. extracted honey mixed with honey-dew. Quality good. Will sell in any quantity desired. Price on application. Sample sent for a two-cent stamp.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey, basswood, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us. 22-2db
S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

FOR SALE.—2000 lbs. choice extracted honey, in 60-lb. cans.
WALTER S. POUDER,
Indianapolis, Ind.

WANTED.—Comb and extracted honey, about 800 lbs. Address
CHARLES SULLIVAN,
7 Worcester Square, Boston, Mass.

FOR SALE. CLOSING OUT.

50 new Simplicity hives painted two coats white. I will put in 2 cases of sections to each hive. I will furnish these hives complete at $1.15 each. This will close March first. For a quantity price,
Address J. E. HENDERSON,
Roney's Point, Ohio Co., W. Va.

☞In responding to this advertisement mention GLEANINGS.

MONEY IN RABBITS, TRUE, Belgium Hares. From Imported Parents.
N. BOOMHOWER, GALLUPVILLE, N. Y.

☞In responding to this advertisement mention GLEANINGS.

BARGAINS.

For $1.50 we will send American Agriculturist and Gleanings or any other dollar paper in U. S. For $2.00, Youths' Companion and any dollar paper published. For $1.21, Albany Weekly Press and any dollar paper. Cosmopolitan, American Agriculturist, New York Tribune, Arthur's Home Magazine, and your choice of any of the bee-papers, all full year for $5.00. In above offers American Agriculturist and Youths' Companion must be new subscribers. Papers may go to same or different addresses. Samples of above, 3 cts. each, except Cosmopolitan, which is 25 cts. Full catalogue of 1500 papers free.
Address C. M. GOODSPEED (Am. Club List),
Thorn Hill, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Bee-Hive Machinery For Sale.

A complete set, in first-class condition, and for sale at a bargain. Other business the reason for selling. 24-1d C. A. GRAVES, Shelby, Ohio.

26 COLONIES Black Bees in a pattern of Simplicity hive, for $1.00.
J. M. OVENSHIRE, D. D. S., Dundee, Yates Co., N. Y.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

☞In responding to this advertisement mention GLEANINGS.

Three Back Numbers of the

REVIEW

FOR 10 CENTS.

One of the numbers is that of Dec., 1891, containing 8 extra pages (76 in all) 7 half-tone portraits of leading bee-keepers, illustrated description of the best self-hiver known, choice bits of information gathered at the Chicago and Albany conventions, and a most instructive and interesting discussion of "Remedies for Poor Seasons." It is the largest and best number of the REVIEW yet issued. These numbers are sent out at this low price that bee-keepers may be induced to send for them, and thus become acquainted with the REVIEW, its editor knowing full well that such acquaintance will prove of mutual benefit. With the numbers will be sent a list of the special topics that have been discussed, the issues in which they appeared, and the price at which they may be obtained. The REVIEW is $1.00 a year. The book, "Advanced Bee Culture," is 50 cts. Both for $1.25. The REVIEW for 1892 will be better, brighter, and more "crispy" than ever. All new subscribers for 1892 will receive the Dec., 1891, issue, free. Address

BEE-KEEPERS' REVIEW,
FLINT, MICH.

☞In responding to this advertisement mention GLEANINGS.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

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SEND for my 24-page **RESTRICTOR** circular. It tells just how to prevent swarms and brace-combs; how to get the bees into the surplus, and rear queens in full colonies, etc.
24 23db C. W. DAYTON, Clinton, Wisconsin.

☞In responding to this advertisement mention GLEANINGS.

EARLY QUEENS.

In March and April, from apiary in Texas, the choicest 5-banded Italian stock, warranted purely mated. One, $1.25; 6 for $6.00.

BREEDING QUEENS.

$3.00 to $5.00 each. All orders filled promptly. Send your name NOW for full particulars. Safe arrival and *entire satisfaction guaranteed* or money refunded. Orders booked now, pay when you want the queens. 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

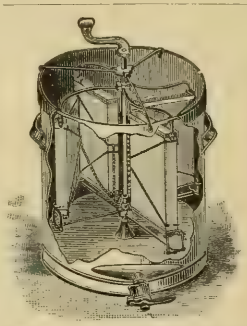
In writing to advertisers please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb



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USED BY
BEE-KEEPERS.
EDWARD R. NEWCOMB.
Pleasant Valley, N. Y.

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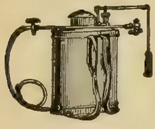

SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculio prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quincy, Ills.**

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PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
—Dr. G. L. Tinker.

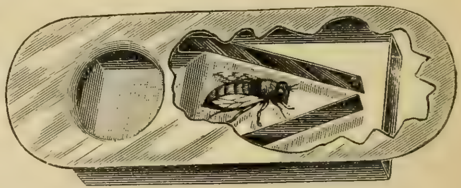
OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS,** Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS 6-4d

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.
PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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A glimpse of our Factory, now making carloads of **Dovetailed Hives**, Lang. Simp. hives, plain Lang. hives, Alternating hives, Chaff hives, sections, etc. Many articles not made by others.
We can furnish, at wholesale or retail, **Every thing** of practical construction needed in the apiary, and at **Lowest Prices.** Satisfaction guaranteed. Send for our **New Catalogue,** 51 illustrated pages, free to all. 4tfdb

E. KRETCHMER, Red Oak, Iowa.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XIX. DECEMBER 15, 1891. No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

I'M NOT so very rich, but I have more than I want—of the grip.

THAT PICTURE on page 937 is a libel. The real thing is a beauty.

NOT WHAT A MAN has, but what he doesn't want, makes him rich.

THE COLORADO State society is to have an annual "honey day." What's a "honey day"?

AT COLORADO State convention, Mr. Collins was reported as losing 35 colonies by yellow-jackets.

THIS YEAR there seem to be plenty ready to buy honey outright. In years of plenty they want it on commission.

VASELINE is recommended in *B. B. J.* to drive robbers away by painting on the cracks where the robbers are trying to force entrance.

THE IMPORTANCE of a space of about two inches under the bottom-bars for winter is more and more believed in, whether for in cellar or out.

DR. MASON told us at Chicago that each State would have only about ten square feet for its apiarian exhibit at the World's Fair. Rather cramped quarters.

WHITE CHILEAN CLOVER, mentioned on page 917, is *Melilotus alba*, as I know from another article I saw in a Southern paper from the pen of the same writer.

ORDER SUPPLIES *now*. The discount is as good as 8 to 16 per cent interest per annum on the money, to say nothing of the comfort and convenience of having every thing ahead of time.

I WANTED to go to Albany ever so much—wanted to see a number of those good friends in the East, whom I've never met, but I got the grip—I mean the grip got me—and I had to stay at home.

ENOUGH THERMOMETERS to hang one in each room might help to keep peace in the family. One says, "This room is too cold;" another says, "It's too hot;" and one of Root's 15-cent thermometers would be a good umpire to settle the case.

A. N. DRAPER tells in last GLEANINGS about being up all night hauling bees. When he has had a little more more experience he'll give up that nonsense, and use broad daylight. I want light enough to make sure there are no leaks before I start with a load.

HEDDON, in *A. B. J.*, gives as cardinal points in bee-keeping: "1. Select a good field, and keep it all to yourself; 2. Get bees enough to stock it." Now will Bro. H. please arise and tell us *how* to keep the field all to one's self? Getting bees enough has not succeeded; what will? In the second place, will he tell us how to find out how many bees are "enough to stock it"?

THE MINNESOTA publication has changed its name from "*The Bee Journal*" to "*The Northwestern Bee Journal*." That's right; now we know which bee-journal is meant; but the simple name, "*the* bee-journal," might mean GLEANINGS or any other bee-journal. Success to the *N. W. B. J.!*

S. CORNEIL is a formidable opponent. He was killed dead, metaphorically speaking, in the foul-brood matter, but now he's up and at it again in the *A. B. J.*, with some arguments that I am very anxious to see met. Friend Corneil, the "decided improvement in my respiration" has suffered a relapse.

WHEN NEWMAN, of the *A. B. J.*, changes his mind he makes no bones of saying so. Formerly he argued that essays at a convention were essential. Now he says, in the most unreserved manner, "The Northwestern was a convention without essays, and it was a charming success. There was no want of subject-matter to discuss, and no lack of enthusiasm.

JOHN HEWITT (A Hallamshire Bee-keeper), in an article in *A. B. J.*, is after Doolittle, Root, and others, with a sharp stick, for saying old virgin queens can not be safely introduced. He uses the knock-down argument, that, for three years, he has been selling virgin queens, safe delivery and introduction guaranteed. He sends out no queen under six days old.

"WE ALWAYS have better conventions when there is a large attendance of ladies," p. 919. I don't know that I ever heard it put just that way; but, come to think of it, I'm sure it's so. The presence of one or more good women in a convention, even if not a feminine voice is heard, seems to have a livening and purifying influence. Oh, yes! let's have the women at conventions.

GAMBLING has a pretty strong hold on this nation. The Louisiana lottery openly debauches its thousands, and in many insidious ways the young are trained to become gamblers. The latest comes from a religious newspaper. It gives a rebus that any child of 12 might decipher, and then offers prizes to the first 20 who send in subscriptions with the correct solution. The money is sent for the *chance* of being among the first twenty, and that's the soul of gambling.

"IN HAULING BEES home for the winter, rather than take off the covers and put on the wire-cloth screen tops, it is cheaper to select a cool day (or else a moonlight night), when all that is necessary at most is to put on only entrance-screens." That's what you say, Mr. Editor, on page 916. Now look here. It's not necessary to select either a cool day or a light night. In spring and fall I've hauled load after load, year after year, in broad daylight, with only entrance-screens for ventilation; and the only objection I have to shutting them up in the middle of the day to be hauled, is the loss of the bees out flying. But I've often shut up an extra load early in the morning, or the night before, and then put them on the wagon when other hives were in full flight.

ITALIANS IN ITALY.

CHAS. BIANCONCINI, THE EXPORTER OF THESE BEES, REFUTES THE STATEMENT THAT BEES GENERALLY ON THE ITALIAN PENINSULA ARE NOT PURE.

I see that a tourist, Arthur T. Goldsborough (Gleanings, page 842), asserts in an article to have been all through Italy, and that he saw no pure Italian bees in the country, and there were only one or two banded bees at the best, and that he doesn't believe that pure bees are found on this peninsula.

There are some assertions which are so erroneous as to need no refutation; but the article in question appears in an American bee-paper. Americans do not travel much in Italy, and, in consequence, they do not read our apicultural journals. This is why I would ask of you to give room for this answer. I shall content myself by simply asking the gentleman to refer, as a basis for our argument, to Messrs. T. W. Cowan and S. Simmins, of England; Mr. Frank Benton, lately of Germany, now of Washington, U. S.; E. Bertrand, of Switzerland, and to many others in Europe. Although the bee can be bred in all parts of Italy, we are situated in a section of country where apiculture is but little cared for. The efforts put forth for the propagation of rational methods have succeeded for a number of years in quite a number of provinces; but in the most of them modern apiculture is actively discouraged, and only a small number of the "faithful" have continued in the right way.

I should like very much to know in what parts of Italy that gentleman has been; what large establishments he has visited; the names of the best known Italian bee-keepers with whom he has conversed. Several, of whom I inquired, have told me that they knew nothing about him. Certainly in some parts of Italy the black bee is to be found, but very rarely. There are also here and there some apiaries, perhaps, of the third class, the bees of which show the three yellow bands but feebly marked; but to deduce from this the idea that the race does not exist here in its purity is absurd. The gentleman will permit me to say one thing to him seriously—note, I do not speak hastily or unadvisedly: In order to secure the crop of wax and honey we very frequently buy colonies of bees in the provinces surrounding us; and we almost invariably find that the queens are very well marked. All this, however, does not interest the American importer of Italian queens. He will ask of this tourist whether he visited those establishments which export bees; whether he observed closely the race of bees in the yards of Messrs. Mona, Fiorini, Rauschenfeld, and Mr. Paglia (my partner), the largest and perhaps the finest in Italy.

Now, as this gentleman will probably reply that he does not know these people, I would suggest that he probably found some Italian peasants who have black bees in very small apiaries, where the bees were not very strongly marked. I have not seen *all* the establishments which export queens; but I am happy to believe that my colleagues are as careful as we are to preserve their good name, and to preserve the purity of their bees. The choice of colonies, the selection of queens, and suppressing without mercy all that do not show the presence of desirable qualities on the part of European, American, and Australian buyers, have led to the enviable reputation which our house now enjoys. I can, if desired, show to this gentleman letters which prove how well people are satisfied with our bees; but out of them all I need mention only the unquestionable name of A. I. Root.

I would say to that tourist that we are so scrupulous in regard to the purity of our bees, for fear of hybridization, that we have entirely abandoned the culture of Carniolans, Cyprians, and Syrians, although we often receive orders for those races. And now I should like to know, Mr. Ernest, whether we may not have the happiness of seeing you in Italy, now that excursions are so easily undertaken. If so, you can judge for yourself whether we are right or not. Charles Bianconcini.

Bologna, Italy.

[The article above, coming from a native born citizen of Italy, and citing such eminent authority as Cowan, Simmins, Benton, and Bertrand, to back the statements, ought to satisfy any one that the bees of Italy, as a general rule, are pure Italians. No one could possibly suppose that there were absolutely no other bees in that country, because it is natural enough that there should be a few bee-keepers who would want to see the Carniolans, Punics, and German bees, and therefore would have queens of these races mailed to them; but that pure Italians are not to be found in Italy, as averred by Mr. Goldsboro, on page 842, is far from the facts in the case. We inserted the article, because, above all things, Gleanings desires that the full truth shall come out, cut which way it may. Mr. Bianconcini is a gentleman with whom we have had the pleasantest of business relations, and one whose statements can be safely relied on: and while we do not for a moment think that Mr. Goldsboro desired to misrepresent, we feel sure that he must have examined the bees very carelessly, or else visited but very few localities. All the queens that we have imported from Italy exhibit in their progeny quite a fixed type of bees. They are leather-colored, the third band being often quite indistinct. They are generally good honey-gatherers, rather better than our home-bred stocks, we think; and it is only in very rare instances when we find that they are cross. These exceptions, of course, can not disprove the rule.

We know it has been somewhat questioned whether it is desirable or even necessary to go to Italy for our strains of bees, in view of the high perfection of queen-rearing in this country. But as we have said before, Mr. Charles Bianconcini and his colleagues are expert queen-breeders. They know how to develop the valuable traits in the bees. Besides this, they have one very great advantage over American breeders—at least in the Northern States—and that is, a beautiful climate. There is something in that southern clime that produces bees of marked qualities, whatever else we may say of the breeders. It may look as though we were interested parties; but, dear friends, we could make more money by putting high prices on home-bred stock than we could to import from Italy; and this home-bred stock would sell. We do have high-priced home-bred queens; but we can not make these queens duplicate themselves as do those we import direct from Italy.]

HANDLING HIVES INSTEAD OF FRAMES.

G. M. DOOLITTLE SIFTS THE MATTER.

I have been somewhat amused over some of the ideas advanced by the advocates of the "short-cut" plan of handling hives instead of frames, in order that we may in the future produce honey more cheaply than in the past. If I am correct, GLEANINGS has never advocated the handling of hives instead of frames, but, rather, advocated "handling hives more and frames less." This will do very well; yet, as a whole, it has, in my opinion, the element in it of impressing the beginner that a careless style of bee-keeping will accomplish as good results as will one of push and energy, which is incorporated in the handling of frames. "Old heads" can be trusted better to *guess* at the inside conditions of a colony from the outside appearances of the same; but I contend that, in order for any person to become an accomplished apiarist, he must, in his initiatory steps, become thoroughly acquainted with the inside workings of a colony of bees by *actual inspection* of the frames of brood, honey, and combs. Handling hives, in the abstract, admits of no suitable knowledge of the inside workings of a colony equal to even a fair guess; hence I claim that the ideas advanced along that line are only a step toward the "dark ages" of the past, when our beloved pursuit was pretty much shrouded in mystery. I find the following in one of our bee-papers:

"We have lost sight of the advantages of judging from outside appearances in our use of the frames. If an experienced bee-keeper places his ear against the side of the hive, and raps or jars, he can tell by the sound, pretty well, the condition of the colony inside of the hive. During the early spring, in cold storms, when there are colonies in the apiary that are liable to starve, if the apiarist will go from hive to hive every day and place his ear on the side of the hive, and rap, he can tell by the sound whether all are fed. If the response is weak, a little syrup given immediately will soon restore the strong, vigorous response to the rap," etc., on to the end of the chapter. And what is all this for? Simply to forward on the craze which has stolen the heads of some of our bee-keekers, so that no amount of work is considered too menial so long as the handling of frames can be avoided, in this great strife in producing honey cheaply, so that apiarists can live by raising honey at the present and fast becoming depressed prices of the same. Just think of a sleek, high-toned apiarist going out every day in slush and cold storms, getting down on his knees in the mud and snow, placing his ear to the side of the hives, and rapping on the same to know whether any of the colonies are going to starve, when once handling of the frames during the first flight of the bees in the spring would place them where the apiarist would *positively know* that no colony need starve during the next month or six weeks to come! Think of a woman going out every week, turning a hive bottom side up, and, with smoke, driving the bees down among the combs, peering in as best she can, setting the hive back on its stand again, removing the covering from the top, smoking again, and looking down into the hive that way, all for the sake of *guessing* at what is inside, when once handling of the frames the fore part of June would give this lady bee-keeper a perfect knowledge regarding all that would be necessary to know about that colony for the next six weeks to come! If this is to be the advancement (?) of the future decade of our bee-keeping history, I am heartily glad that my apicultural life was cast among those of the past decade. Gentlemen, the whole thing is a step in the wrong direction. Teach the beginner that it is an *absolute necessity* that he fully understand all of the minutiæ of the inside workings of a colony of bees; and, after he has this fully learned, frames are to be handled only where a gain can be made by handling them. Work in the apiary is required only where a profit is to come from that work; and that this handling and work must be done at the right time, in the right manner, and in the right place, if he or she would become a successful apiarist.

It is with pride that I look at our achievements in apiculture during the past quarter of a century; and shall we disgrace ourselves and our nation now by going back to the guesswork of our forefathers? No! a thousand times no! Let us keep climbing the hill of scientific apiculture till we shall have reached the loftiest tablelands of the highest peak, and from there shout forth the victory which a thorough understanding of the inside of a bee-hive, accompanied with a moderate use of the same, has led us to. Let the watchword be *ever onward*, onward, till the unfathomable depths of the present are reached in the future; till the human mind has grasped *all* that the mind of the Infinite has intended that we should take in of this our beloved pursuit. If any one sees only *fun* in handling frames, and playing with and searching out the marvelous things which are seen on the inside of a colony of bees, as does your humble servant, then let him set apart one or two colonies for this purpose, and consider the fun as the profit from these; but only work or play with the rest of the apiary, where it is seen that an actual profit in dollars and cents is to come from such work. In this way, neither "all work" nor "all play" will "make Jack a dull boy." G. M. DOOLITTLE.

Borodino, N. Y., Nov. 28.

[If you will follow carefully all that has been said, you will see that GLEANINGS does not differ very much from your views. It has never advocated that *beginners* should diagnose colonies without handling frames. The policy that it has and does advocate is that, after the beginner, by much handling of frames, has grown to be almost a veteran, he should no longer handle frames separately, but learn to diagnose and almost get along with handling only one frame to a colony. A *beginner* must go all through a colony. But it would be bad policy for him to continue this practice all his life as a bee-keeper, as you yourself would quite likely admit. We quite agree with you that we could not depend upon the hum or z-z-z-p of a colony, nor would we care to get down on our knees in the wet to do it. There are other cheaper and more reliable methods.]

BEES AT THE BIG FAIR.

DR. MASON AND THE OHIO EXHIBIT.

Dr. A. B. Mason, of this city, who is probably one of the best-known bee-keepers of America, has just returned from Chicago, where he has been to confer with Mr. W. S. Buchanan, the chief of the department of agriculture for the Columbian exposition, in regard to the preparation of an exhibit of bees and honey, and every thing used by the bee-keepers in increasing the number of colonies of bees, and securing the products of the labors of the bees that "work all day and never sleep nights."

The doctor has been recommended for appointment as superintendent of the apiarian department at the World's Fair in 1893, by the North American Bee-keepers' Association, and his selection for that position would give universal satisfaction to the bee-keepers.

Mr. Buchanan, having been quite an extensive bee-keeper himself, takes a deep interest in the apiarian exhibit, and assured Dr. Mason that he would do all he could to aid the bee-keepers in making a creditable exhibit of their industry, and suggested a plan for an exhibit of bees that was just in accord with the method that had been devised for their exhibition, and the doctor feels quite elated over the prospects for a grand exhibit.

In a paper read by Dr. Mason at the last meeting of the North American Bee-keepers' Association, he outlined a plan for the exhibits that has received the indorsement of the bee-keepers, and been adopted by all the State societies that have taken action in the matter.

He says that the Illinois bee-keepers tried last winter to get an appropriation of $5000 from the legislature with which to make their State exhibit, and at the recent meeting of the Northwestern bee-keepers at Chicago he said he thought that was not the way to do. His idea is to let the State bee-keepers' associations of the different States have charge of the apiarian exhibit from their State, under the direction of the State Board of Commissioners, and let the State board pay the expenses, which he thinks ought not to exceed one-half that sum, and perhaps even less.

The bee-journals of the country are in favor of the doctor's appointment, and the *Canadian Bee Journal* says: "If the apiarian exhibit at the World's Fair is not a success it will not be Dr. Mason's fault."

The space for the exhibit will, like many other departments, probably be somewhat limited, occupying not more than 300 or 400 feet in length.

There will probably be a honey exhibit from fifteen or twenty States, so the space for each will be very small indeed.

In a letter to the doctor, Mr. Buchanan says: "I would suggest that, in considering the question of space, it be borne in mind, that, in all probability, demands will be made in all departments of the exposition for vastly more space than can be assigned; and in my judgment the most careful thought should be given to the question of how best to fully illustrate an industry in the most attractive and thorough manner, in a limited space."

At the Ohio centennial one party occupied 50 feet in length and full width of the allotted space, and the doctor thinks bee-keepers will be very much disappointed in not being allowed to "spread themselves."

It is intended to have houses in all sorts of fanciful shapes, and in all kinds of attractive and beautiful receptacles, so as to call forth from the visitors all the "sweet" expressions of amazement that all the languages of the world are capable of furnishing.

An effort will be made to have a large variety of honey-producing plants growing and in bloom on the grounds.—*Toledo Blade, Nov. 27.*

RAMBLE NO. 49.

FLINT AND LAPEER, MICH.

Leaving the soil of the fertile and sovereign State of Ohio, we entered Michigan. A rapid journey of a few hours brought us into Livingston Co. We found but few bee-keepers in this portion of the State, but spent a week very pleasantly with kinsmen, and watched the progress of Michigan farming in its midsummer phases. The mowing-machine was doing its work, and the harvesting-machines were being put in order for the fields of golden wheat that dotted the landscape. In this county white beans are raised extensively; and from the hundreds of acres visible, beans seemed to be the staple crop. Every thing in the farming line looked favorable, and the people seemed happy and contented. A few days' looking into the faces of kindred who had experienced the ups and downs incident to settling a new country, and establishing good government and fostering moral and religious ideas, and we bade them farewell, and the rumbling train was again our home.

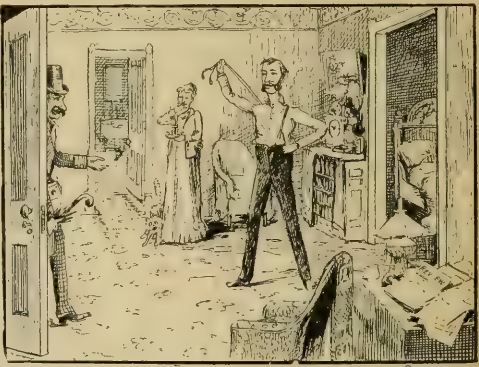
Flint, Mich., has a pleasant sound to the bee-keeping fraternity, and is a pleasantly located little city of some 12,000 pleasant people. This being the home of Bro. Hutchinson and the *Review*, the Rambler could not pass through the town without making a call. In fact, we went out of our regular route a little in order to pass through Flint. We had planned to reach there before dark; but it was 8 o'clock before we dropped from the train.

"Do you know where Mr. Hutchinson lives?" said we, to the first hackman.

He seemed to be uncertain about it, but made sure of us by tucking us into his hack, and, receiving directions from what seemed to be the boss hackman, started off on a lively trot for somewhere. He finally stopped on a street-corner, and musingly said "bee-hives."

"Yes," says we, "that's him."

A few steps more and the outlines of a house in the shadow of a few noble shade-trees were revealed; but all was dark and silent. It was 8:30; and, concluding that Bro. H. was off on a vacation, we were about to seek a hotel when the door opened and Mrs. H. appeared. It was a charming voice that said "come in." The voice further said, "Mr. H. is in bed, but I will call him."



W. Z. HUTCHINSON ROUSTED FROM SWEET SLUMBER BY THE RAMBLER.

The Rambler protested; but Bro. H. had one eye and ear open, and soon emerged from the land of Morpheus, and gave us the right hand of fellowship, and we visited until ten o'clock.

In the morning we saw visible signs why Bro. H. had retired early. The windows from the room in which the *Review* is made received light from under the branches of those aforesaid shade-trees. A larger and better room, with more light, was in the rear of the house, and this had been fitted up, and moving into it was in progress. I was pleased to witness the visible signs of the continued prosperity of the *Review*. The *Review's* clean bright make-up and kindly disposition is strongly suggestive of a ladies' boudoir; and, with wife and those twins, who are now almost young ladies' and so near alike that you want to put a distinguishing mark on one, the Hutchinson home has a certain atmosphere of refinement; and we certainly think that the *Review's* success is, in a measure, due to the wife's fair hands and twins' nimble fingers. Reader of the *Review*, remember, when you look at its pages, that it comes from a humble but beautiful American home, and should receive your hearty support. The *Review* thus occupies a unique position among our bee-periodicals. It was started with the avowed purpose of the editor to publish a journal that would stand upon its own merits, and not depend upon a large supply-business for its successful continuance. There have been very many predictions as to its failure; but we believe it has not skipped a number since it was started. Bro. H. is a prolific writer in his chosen pursuit, and has a faculty for touching upon those points that are of vital interest to the practical bee-keeper. Bro. Root started GLEANINGS amid the busy whir of a few buzz-saws. The whir and GLEANINGS have had a steady growth, and, being co-workers, a separation of them would probably be a damage if not ruin to both. GLEANINGS would not be GLEANINGS without that whir, and we want it as it is.

The *American Bee Journal* also fills and important niche, being the only weekly. We are often posted on the progress of apiculture, and would certainly miss its frequent visits. These three publications seem to take the lead in our literature. Our other papers are no doubt giving more than the small subscription price; but it has been our opinion that a concentration of subscriptions upon a few publications would result in better work for the fraternity. The *Review*, however, is an established success with Bro. H. in the editorial chair. With a growing subscription list his efforts will also grow to meet the demands of the hour.

In the morning Bro. H. suggested that we go to Lapeer and see the Hon. R. L. Taylor and his apiary. Our journey of 20 miles was quickly made by rail. After reaching the station we had an opportunity to stretch our legs a whole mile by walking. As it was not near dinner time we took our time, and sauntered along, and inspected a stone-eater on the way—of course, it was a stone-eater. There were the jaws and the stone. Feed the jaws and the stone came out just right to make roads with. That's the kind of roads they make in Lapeer. We feel like writing a whole ramble on this very subject, but will not at this time inflict our observation upon you, and will only say that the stone-crusher is, in many portions of the country, lifting the disgrace from our country roads and making them delightful to travel upon.

W. Z. HUTCHINSON AND R. L. TAYLOR'S APIARY, LAPEER, MICH.

Upon our arrival at the neat Taylor residence we were disappointed to find that R. L. had not returned from his arduous duties at the State capital, of law-making and looking out for the interests of bee-keepers. Bro. H. seemed perfectly at home in the Taylor family, and a pleasant hour was passed. Mrs. T. trying to make amends for the absence of her husband, she succeeded admirably, especially at the latter end of the hour when we sat down to a bountiful dinner. We know R. L. Taylor is a happy man. The queen of his home is a visible demonstration of it. After dinner we were given full liberty to examine the apiary. Mr.

Taylor's honey-house and shop are a continuation of his barn, and we here found all of the paraphernalia of an old and extensive bee-keeper. Mr. T. manufactures a portion of his own supplies, and runs his circular saws with a horse-power of his own invention. This is a very convenient arrangement, and can be taken up or put down upon his barn floor when desired. This horse-power was illustrated in GLEANINGS some years ago.

Foundation-machines and wax-rendering apparatus showed that there were busy times here on occasions. We pass from the shop to the apiary, and find nearly if not quite 200 swarms of bees, nearly all in Heddon hives, arranged in the shade of apple-trees. Mr. T. is a believer in and is successful with the new-fangled hive. In fact, he is an advanced bee-keeper. Even that dread disease foul brood has no terrors for him, as he has complete mastery of it, as we understood from Bro. H.

Our camera secured a very good view of the apiary; but in our operations an accident happened. In order to get a better view we were in a precarious position on a picket fence. Bro. H. seemed interested in our skill as a trapeze performer; and while he was thus absorbed, our camera had an accidental "snap shot;" and when we developed the negative there was a very good-looking head in the corner. We hope the half-tone engraving will retain it. Bro. H. seemed to enjoy the day's outing; and though we had rousted him from sweet slumber the previous evening, we hope our day's outing gave him a little needed change. We journeyed back to Flint; and as our ticket was to Lansing, our farewell shake was given on the train, and we were speeding away to Lansing.

RAMBLER.

[We should like to know, Rambler, if this is the way you surprise bee-keepers. Even the cat seems to be horribly amazed; and while Mrs. H. is delightfully amused, W. Z. H. evidently does not propose to stop for ceremonies in his hearty welcome. We have watched with interest the apparent prosperity of the *Review*. It certainly has grown on its merits, and GLEANINGS is glad to welcome it as a colaborer. We have wondered sometimes whether Mrs. W. Z. H. and the twins didn't have something to do with it, as it is always so neat and tasty.

We are glad to get a view of R. L. Taylor's apiary, even though you did have to perform an acrobatic feat in order to secure it. So this is an apiary of all the new Heddon hives. Its general neatness and orderly arrangement, considering that it was not fixed up for the occasion, reflects credit upon the owner. The small picture of Mr. Hutchinson is very good. The next ramble is at the Michigan Agricultural College. Rambler's impressions there are realistic.]

THE WINTER PROBLEM IN BEE-KEEPING.

A REVIEW OF A NEW BOOK.

By Ernest R. Root.

Before us lies a 77-page book entitled "The Winter Problem in Bee-keeping. By G. R. Pierce." The book is exceedingly well written, and the writer is evidently a scholar, scientist, and a close observer. We do not remember to have seen his name in print before, in connection with bee-literature; but he appears to be fully conversant with it. He starts out by saying that bee-keeping might in some instances be made profitable if it were not for heavy losses in winter, and thinks that the average losses would not be far from 40 per cent per annum; and concludes that if bee-keepers can be taught to winter their bees, the business would be made a success where it otherwise would be a failure. The author has evidently placed the percentage of loss beyond what it really is. Twenty-five per cent would be nearer correct; and among intelligent bee-keepers, 10 per cent.

THE POLLEN THEORY SET ASIDE.

Mr. Pierce is against the pollen theory; that is, he does not believe that pollen is the *cause* of diarrhea. He argues that cold and lack of stores is the real cause; that diarrhea among bees is nothing more than intestinal catarrh, and that pollen only aggravates the disease already present, rather than gives rise to it.

OPPOSED TO ABSORBENTS IN OUR COLONIES DURING WINTER.

He is decidedly against absorbents to take up the moisture from the colony. By quite a long series of experiments he concludes that they are a positive detriment to the well-being of the colony. Chaff cushions or other porous material over a sealed cover are all right, and serve a good purpose; but the trouble is, he urges, when the cushions are *next to the bees* they allow the escape of warm air, which, being heavily charged with moisture, and coming in contact with the colder atmosphere, precipitates said moisture, making the cushions damp. In this condition the cushions are good conductors of heat, and are a positive injury to the bees below. He is a thorough advocate of protection, and of packing around the bees; but the cover must be so *sealed down* that no heat can escape into the packing material above, which, unless kept dry, is worse than nothing.

For several years back we have advocated the use of absorbents in outdoor wintering; and only a few months ago we decided again that we must have them. But in the last few weeks we have been watching the matter very narrowly; and before the above work came to hand we had begun to form conclusions somewhat as expressed above. It is needless to say, that, when the book came to hand, we read it with unusual interest. We then handed it to our apiarist, Mr. Spafford, who, after carefully reading it through, was captivated, and gave it as his opinion that the author was sound, and, so far as he had observed, the statements were correct in reference to the use of absorbents. We have since reread it, and are now making some experiments, all of which up to date *seem* to argue against *absorbents*—but, mind you, not against packing material over a *sealed* cover.

PIERCE'S METHOD OF PACKING BEES FOR WINTER.

He uses the Langstroth hive, so his plan can be readily tested by nearly all, even at this late date. He would have a floor-board, or at least a board under the bottom-board, wide enough and long enough to project two inches on all sides. He would then have a box, without top or bottom, 20 inches deep, and large enough to leave two inches of packing space all around the hive, the same to be set down on the large bottom-board. The inside hive should have a flat board that had been sealed down early in the fall by the bees, so that it would be air-tight. Above this cover-board he would place several folded newspapers, paper being one of the best non-conductors. Over this he would place three or four newspapers *unfolded*, with the edges folded and tucked around the sides of the hive. Around the whole he would then pour packing material, such as leaves crammed in solid. When the box is full, put the cover of the outside winter case on. In this condition he would not be afraid to insure them against loss. The packing material would never become moist, neither would the cover-board inside of the hive precipitate moisture, on account of the thorough packing above and around it.

THE PLAN NOT NEW.

As already intimated, this plan of outdoor wintering is not new. Several prominent apiarists have urged it, and at different times, though perhaps not so clearly and forcibly, nor so thoroughly substantiated it by a series of experiments extending over so many years. We believe it was J. A. Green (if it was not, it was "the other fellow") who claimed that he could winter bees in a large-mouthed bottle—the bottle being, of course, thoroughly protected by several inches of packing, and the mouth being wide open.

SOME EXPERIMENTS ON WINTERING AT THE HOME OF THE HONEY-BEES.

Quite in line with Mr. Pierce's statements, the absorbents in our winter cases have been getting too moist to please us; and we have therefore put over a number of our colonies thin boards to fit tight on top of the hive. We have even gone so far as to imbed some of them in white-lead paste, being so cold now the bees would not seal them down with propolis. Over these we have poured the packing material and replaced the cover. Nay, we have gone further. We have taken sheets of glass, just the size of the top of the hive, and imbedded them in white-lead paste. Under the three glass covers were previously put creamery thermometers. Over one of these we poured chaff packing; over another, coarse planer-shavings; and on the remaining we laid a chaff cushion. When the thermometer was 10 degrees above zero outdoors under the glass it registered from 45 to 50 degrees. These glass sheets were put on the hives about a month ago. We notice another thing—that their clusters of bees were the last ones to contract up for winter, while those *under the absorbents* were balled up a week or so before—the cushions being a little moist. Now, the inside of this glass, even with only a two-inch chaff packing, never precipitates moisture; in fact, the glass feels warm to the hand, and the hive is perfectly dry inside. On the very coldest days the bees are clustered pretty well down toward the entrance, showing that they are not suffering from want of heat.

WHAT TO DO, AND HOW TO BE HAPPY, ETC.

Next summer, if we can procure a large glass bottle we will put some bees into it, let them build their natural combs, and then prepare them *a la* Green. Winter? Of course they will. But then it will be lots of fun to pull the packing away from the sides, to witness how the ball of bees is and where it migrates from week to week, etc. By the way, if you wish to have lots of fun, and wish to learn more about wintering than you ever knew before, procure a sheet of glass and imbed it in white-lead paste over the top of one of your average colonies. Protect it thoroughly with packing, and then every few days during winter "paw" the packing away, take a peep at the thermometer, and see where the bees are. If you work quickly and carefully enough, you need not disturb the bees in the least.

WHY WE HAVE HAD SUCH GOOD RESULTS WITH ABSORBING CUSHIONS.

Of course, before spring we may be very much less enthusiastic over non-absorbents. But we have this to say about absorbing cushions: Very few bee-keepers—in fact, no one—can show better results in winter for the last ten years than we have had. During this time, with absorbing cushions we have lost less than three per cent, and that with anywhere from 150 to 200 colonies. But as we look back now, the three per cent died from some unknown cause; and, as nearly as we can recollect, their cushions were very wet. One colony in particular last winter—the best one in the whole apiary—"went up" before March, and its cushion was soaking wet. We were quite loath to believe at the time that the wet cushion had any deleterious effect; but in the light of recent developments it is suggestive. Now, why is it that we had such a low percentage of loss? Perhaps this is the solution: Our cushions were about eight inches deep; and, being packed solidly in the upper story, it amounted, almost, to *no* upward ventilation. In a sense, then, they approximated toward the condition of a sealed cover. If we are correct in our own observations, two inches of packing and a sealed cover is as good as eight or ten inches of packing *next to the bees*. Where we have used absorbing cushions over two inches thick next to the bees, many of them have been soaked through, even after being on the hives for only a month. Over against this is the fact that packing material of the same thickness, above the sealed cover, was perfectly dry, *so also was the hive inside;* and the thermometer registered 45 to 50 when the outside temperature under a high wind was only 10 degrees above zero. This is a fruitful and timely subject, and we should like to have it thoroughly discussed.

By the way, we should mention that the book, "Winter Problem," can be obtained of the author, G. R. Pierce, Blairstown, Benton Co., Ia.; price 50 cents. It is not a very large book, but it represents, evidently, a great amount of study and experimentation; and although you may not find any-thing new in it, you will find it beautifully written and interesting.

* * *

JULIUS HOFFMAN.

THE INVENTOR OF THE HOFFMAN FRAME.

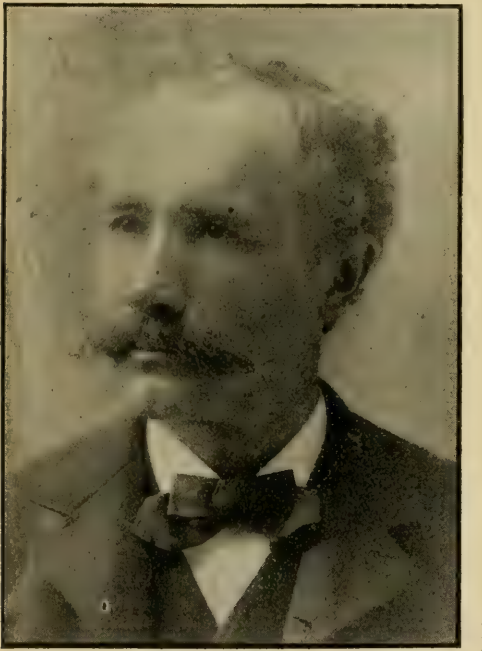
The subject of this sketch was born in the town of Grottkan, province of Silesia, Prussia, Germany, on the 25th of October, 1838. His birthplace is but a few miles from where Rev. Dr. Dzierzon spent most of his lifetime among his bees, and from whence he spread his knowledge and discoveries over Germany and the world. When young Hoffman was a little over 13 years old he visited Dr. Dzierzon, and was imbued with such enthusiasm for the bees that he at once bought a colony of blacks into which he introduced one of Dzierzon's best Italian queens. With the exception of about three years he has handled and kept bees ever since.

In 1862 Mr. Hoffman left Germany and took up his abode in London, England. He moved with him a colony of Italian bees and kept them on a shelf outside his bedroom window for four years, during which time they never tried to swarm. They gatherered considerable honey from mignonette, which grew in the small gardens of the city.

In 1866 Mr. Hoffman came to America. He could not part with his pets, hence they crossed the ocean with him. He settled in the city of Brooklyn, and accepted employment in the organ and piano business. During the next four years he increased his bees to 36 colonies. But he soon realized that so many bees in a crowded city lead to trouble and become a nuisance. At that time honey was bringing a good price; and as he loved the bees he decided to move into the country and engage in honey production as a business. The next spring he moved to Rockland Co., N. Y., 35 miles from New York, and in the fall he had 65 colonies. This place did not suit him, and he cast about for a better location.

The writer, at a meeting of bee-keepers in Albany, N. Y., early in the winter of 1872, read an essay which led Mr. Hoffman, who was in attendance, to seek acquaintance. A mutual and lasting friendship sprang up; and, by the advice of the writer, Mr. Hoffman was induced to move to Fort Plain, N. Y., where he settled in the spring of 1873.

There in a few years he increased his stock of bees to about 400 colonies, selling off the increase, 50 to 100 colonies each spring. During this period many of the renowned bee-keepers in various parts of New York were each winter losing hundreds of dollars' worth of bees, and were buying heavily to keep up their stocks. Thus while other bee-keepers were losing their capital, and were discussing the subject of wintering, at conventions and through the papers, and were experimenting with new methods and expensive cellars, Mr. Hoffman was prospering and selling to them his increase. Never shall we forget the astonishment and admiration that filled us when, after Mr. Hoffman had lived at Fort Plain some months, we called and beheld his large apiary and stirring enterprise. Then indeed we thanked our stars that we had been instrumental, in part at least, for the presence among us of a real, live bee-master.



JULIUS HOFFMAN.

From that time on, for some years, we visited him often and studied the conditions, methods, and surroundings, in order to learn the secrets of his great success. Without pointing out at this time the various elements that led to this success, we will state that not the least among them is the brood-frame that bears his name, and which we had the pleasure to first describe and recommend in the *Bee-keepers' Exchange*, page 52, 1879. This gratification is more complete, as, when once adopted, we have never known a bee-keeper to discard them, and nearly all who use them are prosperous.

But Mr. Hoffman desired more land, and a location where more buckwheat is grown; hence in 1884 he sold his place and bought 75 acres of new land four miles east of Canajoharie, and seven miles from his former home. On this he erected suitable buildings, and has each fall for the last five years put into winter quarters about 650 colonies. By sale and shrinkage these are generally reduced to about 500 colonies each spring. This number, kept in five or six different places, is about all that he can, with one assistant, conveniently handle, especially as the assistant has to do chores and attend to three horses and a few cows, besides doing considerable farm work. He has no other assistance except two daughters, who help to extract the honey and prepare sections of comb honey for market.

The extracting is all done at home. Mr. Hoffman has always produced comb honey principally, except for the last three years, during which time the crop has been nearly all extracted.

Seventeen years ago Mr. Hoffman devised the brood-frame that bears his name. It was the outgrowth of a desire to improve existing methods and facilitate manipulation.

Mr. Hoffman's best average crop of comb honey was 80 pounds per colony, and the poorest (season of 1890) was 20 pounds.

Mr. Hoffman is medium in stature, slight of build, and is unassuming and quiet in manner. He has a vigorous mental-motive temperament, and is never idle. A piano and organ builder by trade, he is ingenious and a good mechanic, able to construct his hives in a thorough and perfect manner. He is a great reader, and has frequently translated and condensed articles from the German periodicals.

Aside from his duties as an apiarist, he travels considerably over the adjacent territory and repairs and tunes musical instruments. He is still in the prime of a vigorous manhood; and may he live long to enjoy the fruits of his labors, bless his family, and instruct the bee-keeping fraternity, is the wish of

Canajoharie, N. Y. J. H. NELLIS.

[Our older readers will remember J. H. Nellis as the editor of the *Bee-keepers' Exchange*—a very sprightly bee-journal under his management. He was also at one time secretary and at another time president of the North American Bee-keepers' Association. He not only published a bee-journal, but he was quite an extensive manufacturer of apiarian supplies. In later years, however, the publishing and apiarian-supply business has given place to other interests, although he has all along kept bees. Mr. Nellis was the first one to make public the Hoffman frame and its merits. The files of his old bee-journal show that he was enthusiastic in its praise; and the fact that he has used this frame all these years, and still likes it, shows that it wears well. He has promised to favor us with two or three more articles, not only in regard to further facts concerning Mr. Hoffman and his methods, but also some facts from his own experience.

When we visited Mr. Hoffman we saw all the evidences of material prosperity; and, if we were not mistaken, this prosperity came mainly from the bees. He has a pleasant and beautiful home by the side of a deep ravine. We desire to indorse all that Mr. Nellis has said of its owner; and although he has been wonderfully successful he is very modest in regard to his attainments. He has none of that show and bluster of some bee-keepers who, having obtained moderate success, would have us believe that theirs is the only method that is certain to arrive at success. By their fruits ye shall know them; and so let the Hoffman frame be judged.]

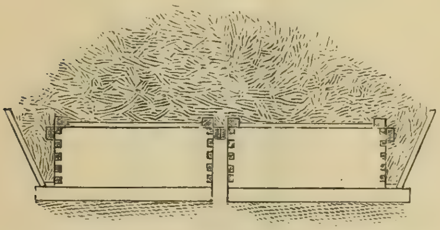
OUTDOOR WINTERING.

HOW DR. MILLER HAS PACKED SOME OF HIS.

Last winter I wintered a few colonies of bees outdoors, the first I wintered out for years. It was a successful experiment, although the winter was a mild one. Usually the winters are very severe here, and I'm not sure that any way of wintering out would prove better than cellaring. Still, on some accounts I'd like to be able to winter out, and this winter I will try the winter cases on a few colonies. If they do not prove satisfactory, I will repeat on a larger scale, I think, the experiment of last winter.

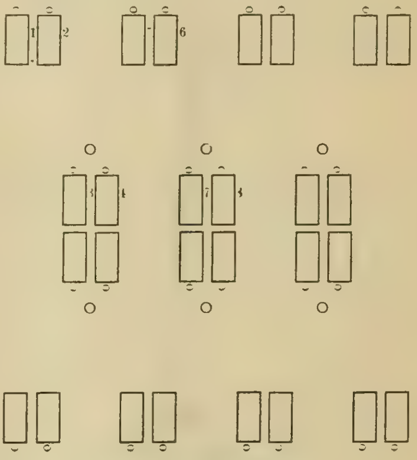
Partly because I should like suggestions concerning it, and partly because I feel sure the plan is a good one for some whose winters are not too severe, I will describe it.

Two hives were placed back to back, then two beside these, back to back, and this might be continued so that there would be two long rows of hives, the backs of the hives of one row standing against the backs of the other row. There was nothing particularly new in the manner of packing, and a glance at the cut showing a transverse section will make it easily understood. A strip was laid across the front part of the deep bottom-board, making a winter passage for the bees under it, without allowing the packing to choke up the entrance. Then a board was set in front, its lower edge resting on the front ends of the bottom-boards. The board was set in a slanting position, so that the upper edge was much further from the hive than the lower, and stakes driven in the ground supported the board. Then the whole was covered with straw taken from the horses' bedding. Perhaps clean straw or prairie hay would be better. It is much easier packing, as well as warmer, to have a number of hives standing together; but the trouble is, that you don't want them to stand that way during the summer, and it makes trouble, fall and spring, for the bees if you change their position. I think it can be managed to make little or no trouble. If you want to try my plan I'll tell you how I'll do if I try it again on a larger scale. Next spring I'll set the hives in one of the out-apiaries, in the way you see them in the picture of the summer arrangement. Of course, only a small section of the apiary is there shown; and through the middle you see the hives placed in groups of four, the entrances facing in opposite directions, one pair of hives standing back to back to the other pair. Between each two groups is a vacancy large enough to admit another group, and in front of this vacancy at each side stands a pair of hives with the entrances facing outward.

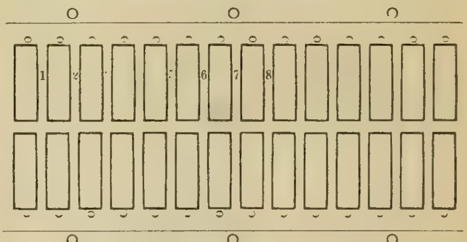


HOW DR. MILLER PACKS HIS HIVES FOR WINTER.

Throughout the summer they remain in this position, but for the winter they must be got in position as shown in the cut of winter arrangement. You will see at a glance that all that is necessary is merely to move back the two outside rows to fill up the vacancies between the center groups. For example, 5 and 6 will be moved back into the space between 4 and 7. When moved back into the two solid rows shown in the winter arrangement, they are ready for packing as previously described. The position of the hives is such that changing from summer to winter arrangement will not greatly disturb the bees. You may move a hive directly backward quite a distance, and the bees will readily find it, for it is directly in the line of their flight, requiring them to go only a little further in the same direction. But if a hive is moved forward it troubles them a great deal more, so that in moving them out in the spring it can not be done at a single operation. It will be necessary to move them perhaps only a few inches the first time, and after a few days a few inches more, and so on.



SUMMER ARRANGEMENT.



WINTER ARRANGEMENT.

It is pretty well agreed that large entrances should be allowed for winter, but it is not well to have strong winds blow, without any hindrance, directly into the entrance. So I would have in winter a close board fence two or three feet high on each side, in front of the hives. The round O's in front of the hives in the central groups show where the fence-posts will be set. If eight-frame single-walled hives are used, these posts will be about five feet apart. The nails in these boards will not be driven entirely in, and then in the spring a claw-hammer will easily draw them out. Would such a fence make trouble in some places by making snowdrifts over the hives?

The boards of this fence must be put out of the way during the summer, and, with a little extra trouble, they can be made to serve a good purpose. Let the posts stand 5½ or 6 feet out of the ground, all sawed off to the same height. From a post on one side to the post on the opposite side put a piece of 2x4 scantling edgewise, fastening it there. On this the boards can be lightly tacked, making a good shade for the central groups of hives. If this is not contemplated it will not be necessary to put the posts so close together.

What are the objections to this plan, and what improvements are suggested?

Marengo, Ill., Dec. 4. C. C. Miller.

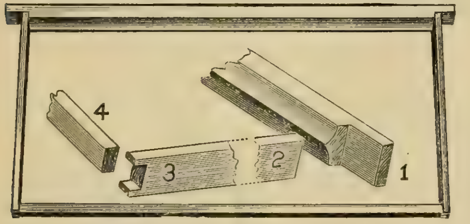
[The only objection to your plan, friend M., is, that it is a great deal of work to move the hives back and forth, put up a temporary board fence, and put on and remove the straw. Wouldn't your straw become wet when exposed to the weather? You might thatch it as they do straw roofs, but that which comes from the stable would be rather too broken, would it not?]

RECENT DEVELOPMENTS.

BROOD-FRAMES FOR 1892.

By Ernest R. Root.

For the past two or three months we have been studying on general improvements on apiarian supplies—improvements that are real, and that have been suggested by experience, rather than those that have been evolved from theory or fancy. Among the first is something in the line of top-bars, with the loose and Hoffman frame. The thick top-bars have given very general satisfaction, and have sustained all the claims of its advocates, when used in connection with the proper bee-spaces—i. e., a scant ¼ inch. In experimenting this summer, and comparing reports carefully, we found it was not necessary to have the top-bar any thicker than would be required to prevent any possible sagging that would change the bee-space—the essential features for the prevention of burr-combs being rather in the width of the bar, depth of bee-space, and exact spacing. With these conditions properly met, we can reduce, a small trifle, the thickness of the top-bar. The following cut shows our last thick-top brood-frame.

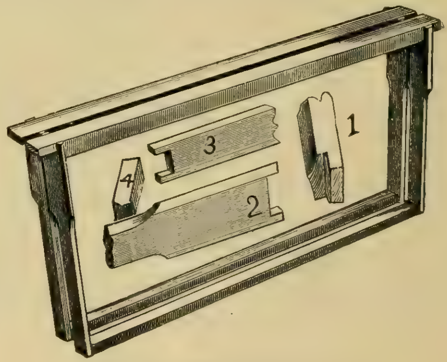


IMPROVED THICK-TOP FRAME, WITH MOLDED COMB-GUIDE.

Fig. 1 in the cut shows the new top-bar, and how the comb-guide is left in relief, as it were, by a set of molding-knives. The cut hardly does justice to it, however. The bead of the comb-guide projects down ⅛ inch, so as to leave room for fastening foundation, and for guiding the bees. Such a comb-guide is always permanent, and never gets "left out" in filling orders; and while the side of the top-bar is only ⅝ deep, the molded guide gives it the stiffness of a bar ⅞ deep. In a word, the new top-bar is $1\frac{1}{16}$ scant in width, ⅞ deep to the comb-guide, and ⅝ deep at the sides.

It seems almost a wonder that somebody did not think of this before; and, even if he did, why he did not put it into practical operation. We stumbled on to it accidentally. A party ordered some sections with this style of top-bar; and while we were contemplating this feature, the thought struck us, "Why not adapt it to brood-frames?"

Another feature of the new frame is the bottom-bar. It is ⅜ thick, and only ½ inch wide, the end-bar being mortised to receive it. Why so narrow a bottom-bar? For the simple reason that bees build combs down to them better. We have always noticed that the Harbison sections, having a very narrow bottom-bar, the comb was almost invariably built clear down and on it; while in ordinary sections there is pretty apt to be a bee-space under the comb. This fact did not lead us to adopt or recommend that style of section—oh, no! using a narrow starter, *a la* Dr. Miller, at the top and bottom of an ordinary section accomplishes the same result more cheaply; but it *did* influence us to adopt a similar bottom-bar for *brood-frames*. D. A. Jones and other prominent bee-keepers have long advocated and used a narrow bar, for this very reason.

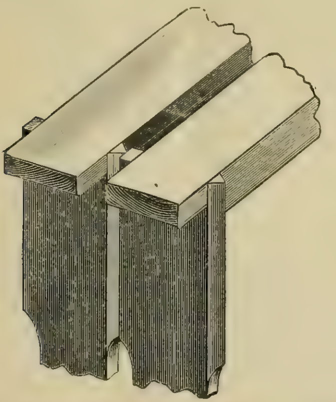


THE NEW HOFFMAN FRAME.

The cut above shows that we have adapted the same top-bar to the Hoffman frames. This, in view of the fact of what we have said against the straight top-bar for this frame, may appear like a retrograde step, even if it does not show that we have changed our views. Now, if you will listen just a minute we will try to make the whole thing plain. We would not change the Hoffman top-bar as he uses it in *his* hive, one iota; but when the same is adapted to a Langstroth frame in a Langstroth hive, a certain insurmountable difficulty comes in the way. It is this: The projection on the Hoffman frame—that is, that part which rests on the rabbet is ½ inch long. This would leave, after the bee-space is taken out back of the frames, only ¼ inch to rest on the hive-rabbet; and this space is so very narrow that there is very little danger of killing any bees; but the standard Langstroth top-bar leaves ¾ inch between the end-bar and the end of the top-bar—that is, ¾ inch projection. After taking out a ¼-inch bee-space this leaves a bearing surface of ½ inch on the wood rabbet. With projecting top-bar 1⅜ wide and ½ inch deep, the chance of killing bees is quite considerable, as experience told us last year. Now, then, this problem confronted us: The Hoffman frame is a good thing, and bee-keepers want it. But to make it entirely satisfactory the standard L. top-bar must be shortened ½ inch or else we must use a *straight* top-bar on a tin rabbet.

Now, when we come to change the length of the standard top-bar, we confront a big difficulty. The new frames would drop down at one end in the old hives with the wide rabbet; and old frames already in use would not go into the new hives with the narrow rabbet. Such a change would make "everlasting rows" with bee-keepers. In fact, it is utterly out of the question to shorten the Langstroth top-bar in order to get the advantage of a Hoffman top-bar. Well, as hinted, there was another way in which we could get around the difficulty, and that was to leave the top-bar the same length as it is, and use a tin rabbet, the purpose of the latter being to prevent the killing of bees and at the same time secure a more perfect lateral movement of the frames. The only purpose of having the Hoffman top-bar wider at the top is to prevent bees from putting chunks of propolis between the straight top-bars in wood rabbets; but by using the tin rabbet of the improved pattern, we solved the difficulty.

The improved Hoffman frame will therefore go in old L. hives as well as in new ones; and while it can be used on old wood rabbets, it is very much better to use it on tin bearings. The new top-bar is more cheaply made; and, besides, it is exactly like the top-bar used in the loose frame previously described. The bottom-bar is likewise made the same. The end-bar is a true Hoffman, the top being mortised out to receive the top-bar, and the edge being brought to a V point. This renders compression unnecessary, and at the same time reduces bee-killing, even by careless bee-keepers, to a number hardly worth considering. How the end-bars come in contact is shown more exactly in the accompanying engraving.



ENLARGED VIEW OF THE NEW HOFFMAN FRAME.

One side, it is to be observed, is square, while the other is brought to a V point. In nailing these frames together, if you will always observe to put them up the same way—that is, the V edge toward you, and next to your left hand while you are holding the frame—you will never have any trouble by the V edges coming together. The following diagram shows just how they should be. This is the way we nail our frames, and the way everybody else should do, in order to avoid confusion.

The improved Hoffman can also be made for less money. While the old one sold for the L. hive for $2.00 per 100 at retail, the new ones cost only $1.70, or 20 cts. more than the loose frames.

You will notice that we have dispensed with the old knife-edge finger-cutting tin rabbet. We have made one a great deal stronger—something that will not bend over and be creasing into the top-bars, thus preventing smooth and easy lateral movement of the frames. The next cut is self-explanatory. Now, there are some very bad propolizers that will fill a rabbet level full of propolis in eight or ten years. Well, this is a rabbet that can be cleaned out with a sharp instrument and not bend its edges over; but with most bees—certainly with all pure Italians—there will be no trouble from propolis being accumulated to any extent in the rabbet, even in years.

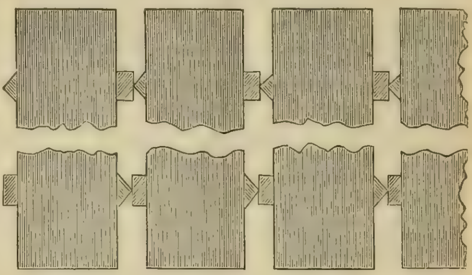
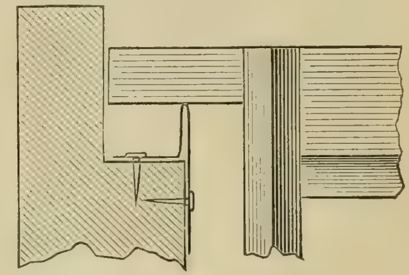


DIAGRAM SHOWING A TOP VIEW OF HOFFMAN FRAMES.



OUR IMPROVED TIN RABBET.

The new Hoffman frame has all the stability and convenience for moving that the old one does; and, besides, it has some features peculiar to itself. In fact, the frame is so much ahead of the old loose frame that we have decided, even though it costs a little more, to put it in all our hives. It is certainly better for beginners, because it will give them straight combs, and show just how far to space the frames. Old bee-keepers—in fact, all—have the option of choosing the loose or any other frame. This decision has been further strengthened by the fact that the Hoffman frame seems to be generally elected in the orders a few weeks back for next season's goods.

HASTY'S APIARY.

AN EXPLANATION OF THE CUT ON P. 914, DEC. 1.

Many thanks to Rambler and GLEANINGS for dealing so kindly with my apiary. The camera, although sometimes provokingly truthful, will occasionally tell little fibs in the interest of politeness, just the same as other folks. When it feels like it, it will report a miscellaneous heap of traps and rubbish, which really looks "like sin," as merely picturesque, and almost "a thing of beauty." Witness the right foreground in this photo.

When we look at apiary views we almost always feel vexed more or less because we can not be informed what this, that, and the other thing is, and what it is for. Although the explanation can not now appear with the picture, I will run over the scene a little.

The first thing in the center foreground is a light case that goes with me from hive to hive when I am at work. The Clark smoker, like a fat captain, is perched on the tin hurricane-deck over all; and the different decks and midships of the case proper are supposed to contain all the small tools and "calamities" that can be wanted when at a hive. Two comb-holders cling to one end of the concern. The disadvantages of this case are so great that I never recommend it to others: but it looks as if I should never be able to tear myself loose from it unless I invent something better.

Next to the right is my solar wax-extractor. Not being in use at the time, it has a muslin cover drawn over it. Next comes a low object occupying considerable space. This is my honey-ripener, for ripening extracted honey. Possibly this may be worth a description some time—at least I think no one else has any thing like it. The top is encumbered with hive-covers and rubbish. Beyond it is a pile of board frames covered with poultry-netting, such as I use to keep the chickens from scratching up my posies and things.

Scattered about "permiscus" through the apiary are patches of my pet flowers, of which the phlox is my especial "ladye love." No flowers appear in the view, except some masses of portulacca—shut up close as a miser's fist, under the hot sun of mid day.

The trees in which I am climbing are chestnuts. I planted the nuts with my own hand when I was nearly a man grown, and now they stand and preach to me how old I am. One would think so many swarms would alight in the tops as to be annoying. Rather curiously, few swarms alight in them, either high or low; while a solitary apple-tree, a little out of view to the left, gets something like one-half of the entire grist of swarms. The last tree-top seen in the left background is a North Carolina basswood, sent me as an August bloomer. It proves to bloom *earlier* than our Ohio trees. Its mate (just out of view) was sent me from the same place, and is evidently of a different variety. It refuses to bloom at all so far, only a few buds appearing and dropping off. Probably this represents the August bloomers. The foliage seen in the left foreground is a large trumpet-vine of our native species. Planted beside a tall post it is unable to get up 60 or 80 feet, as it would like to do, and so it makes a low tree of itself, because it can't do any thing else. As it blooms most of the summer it answers very well as an ornamental tree when so treated. The disadvantages are, that such quantities of such large flowers keep the ground unpleasantly littered in falling off. It also sprouts up so persistently at long distances away as to make a good deal of work.

The apiary itself is laid off in 16 groups of 9 places each, with wide streets between groups. The view shows five groups. As we look cornerwise across them the streets in both directions are scarcely to be discerned. The plan thus admits of 144 hives; but there were enough vacancies at the time the view was taken to reduce the number to something less than a hundred.

Rambler has done up the asparagus, so we will proceed to do up the hives. The open space to the left of the center front is the east end of the center street, running east and west. This divides the apiary into halves, the south division being wholly out of view. The first hive we come to is of the type most prevalent in the apiary—an ordinary Langstroth hive, made for ten frames, but contracted to seven by a dummy and inside board. It has a heavy slant roof telescoped on; and for bottom it has whatever comes handy. The upper story contains wide frames with sections. About the only peculiarity visible is the shading. You see it is shaded with a piece of cotton cloth tacked on the south and west edges of the roof. 'Spects there ought to be a shade-board on the top too; but there isn't. If your eyes are sharp enough you can see one more peculiarity, and that is a big letter A on the front. This means that the queen is a relative of all the other queens who have A over their portal. The next hive bears F, as the queen is of another family. As a means of developing and understanding one's bees I consider this "wrinkle" important. I would recommend it to all who are willing to strive for improvement in strains and families of bees. The third hive as we pass along the street to the west is a big chaff hive, not varying very much from the Root pattern. This, you see, has a heavy shade-board on. It took me many years to find out that these hives needed a shade-board; but they do need it badly, partly owing to the fact that the roofs are of very thin lumber. Another thing that it took me a ridiculous number of years to find out is the nice, clean, convenient shelf to lay things on, which I have by most of the hives. Why! just lay your things down on the level, smooth-clipped tops of my bunches of asparagus. Even a frame of brood with bees adhering can be laid down there without harm; and dripping honey leaves no inconvenient daub. If we should pass clear through this street, all the hives in the range next to it on the north are like the one we inspected last. They are placed here because there is no asparagus to shade this range of places. There used to be a row of asparagus here also; but I laboriously destroyed it because I wanted to widen the street, and because I wanted a freer range of vision into the middle of the groups, and (shall I be ashamed to confess it or not?) because I wanted a nice vantage ground for some posy-beds.

I was lucky in having the ground actually pretty well hoed when Rambler arrived. It isn't always so—more's the pity. How weeds do grow when one is busy, and can't get time to sail into them! And how, when they are getting the worst of it, they seem to take counsel together, and send in some new kind that knows how to take the disadvantage of a fellow! There is a little, soft, innocent-looking weed that makes me almost furious. Its tactics are to come up late in the fall, after I am done hoeing, and make its growth under the snow, or during the odd warm spells in winter and spring, till it has the ground covered like a buffalo-robe. About that time the ground gets peeled about an inch deep with a sharp shovel, and whipped bottom side upward—and I guess that must do for description, unless some of the comrades see something they want to question about.

E. E. Hasty.

Richards, O., Dec. 7.

* * *

THE SHANE APIARY AT HOME, AGAIN.

HEDDON'S HIVE - STAND; HIVE - GROUPING IN APIARIES, ETC.

By Ernest R. Root.

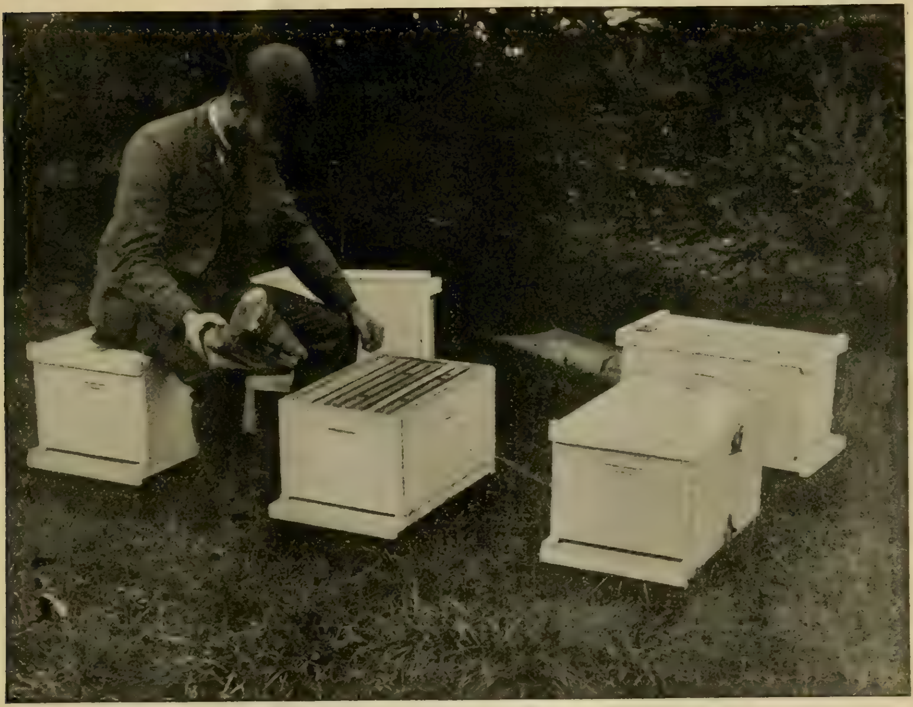
As I promised in our last issue, I will now tell you something more about putting five hives in a group; but before I proceed I hardly know whether to use the personal pronoun I or the editorial *we*. As this article is to be exceedingly personal and egotistical, I believe I will say *I*, even if it *should* please my friend Dr. Miller.

The picture opposite shows what I did after I had taken a view of the whole apiary, such as was shown in our last issue. You see, I stationed the camera, drew the slide, set the pneumatic shutter, and then poised myself on one of the hives, the only connection between me and the camera being a rubber tube. Attached to said tube was a rubber bulb which I held in my hand. I thought I wouldn't wear any veil, so folks would think I worked with bees without one; and then, striking an attitude as nearly natural as I could over the hive, I squeezed the little bulb. The camera gave a click, opened its eye, stared for a few moments; and, after the signal from the bulb, closed its eye and the picture "was took." But, oh dear! I didn't let the thing look at me long enough, for I see the picture is a little dark in the shades.

Well, now, don't pay any more attention to photography. I just want you to notice how convenient it is to have five hives in a group—sit on one and look into the other. Why, it is just fun compared with the old way. When I wish to look at the next hive, all I have to do is to turn around and sit down. May be I diagnose the condition of the colony by looking over the top of the frames. Perhaps I am not satisfied, and I pull out one frame, and that will give me a clew to the whole condition. It so happened I was not doing either in the picture. You will remember that we transferred the combs from some old loose frames into the Hoffman. To hold the combs secure in the frames we used the old-fashioned transferring-clasps. You may think it very shiftless; but both the boys and I were too busy to think of pulling out the clasps after the combs were securely fastened, and I am ashamed to confess that they are on the frames yet. The camera caught me with these thoughts in mind; and if you look sharp you will see cross-lines over the frames that indicate transferring-clasps. Somebody has said that a string wound around the combs would be better than any thing else, because, if you forget it, the bees will gnaw the strings in two, and remove them; but not so with the tin clasps.

There is another thing in the engraving which perhaps you did not notice. The hives are all on Heddon hive-stands, and are elevated out of the grass, and are up to convenient working distance, and, of course, they will be nice and dry the year round. To give you a little better idea of the stand in detail, I made the camera stare at one of the hives by itself, and you will see it on the next page.

The stand proper is simply a shallow box without top or bottom, the sides and ends o which are 4¾ inches deep and ⅞ inch thick. The ends are nailed on to the sides. The lumber is simply the culls from supers—that is, pieces that are too poor to be used for supers to the Dovetailed hive. The front and back boards are dropped down ¼ inch, so as to leave room for the cleats of the bottom-board, which project down a little.

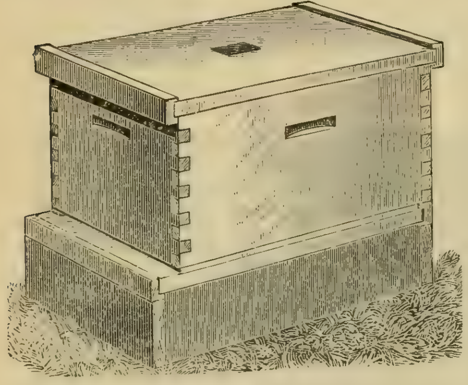


THE JUNIOR EDITOR ENJOYING THE CONVENIENCE OF THE HEDDON HIVE-STAND AND THE SCHEME OF FIVE HIVES IN A GROUP.

This idea I obtained from Heddon's old original eight-frame hive. I happened to be looking over some of our old castaway hives in our museum, and my eyes ran across this. The same thing is illustrated in connection with the old style Heddon hive in February GLEANINGS, 1885, page 85. This stand is about as cheap and convenient as any thing I know of. I like it because it raises the hive up six inches above the ground, while most of the other stands leave them pretty well in the grass.

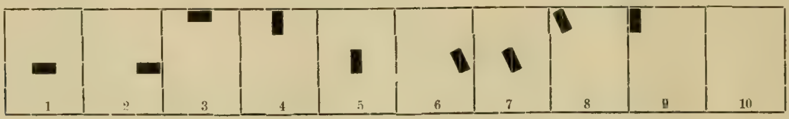
There is one thing more in the picture which perhaps you did not notice. Although showing a little dimly, there are little slates arranged in different positions on the hives. The position of the first slate on the right means that the colony has an untested queen. On the next hive, at right angles to and just back of it, the slate indicates a virgin. In the cut, just above the slate in the center of the hive, it shows that there is a tested queen inside. We use, with a great deal of satisfaction, a code which I reproduce herewith. The key shows the meaning of each position, in small type below.

The apiarist and I have been delighted with this arrangement. Whenever he is sick or away, I can almost tell from the office just what is in every hive; and if an order comes in by telegram, in the absence of the apiarist I take a birdseye view, from the office window, spot the hive I want, rush downstairs, and proceed directly to the place. It makes me feel almost provoked to think that we did not use it years before we did; and I am sure that no queen-breeder or honey-producer can afford to get along without some similar arrangement. It may be very easily varied to suit the requirements of every bee-keeper, whether it be the rearing of queens or the production of honey, or both. To make the record doubly sure, we write in leadpencil on the slate. If the slate is moved, by accident or otherwise, its position may be known at once by its record. I have heard some queen-breeders say they could *remember* what is in every hive, but I doubt it; and I pity their customers who get their queens. Memory is not reliable enough to tell whether a queen is tested, virgin, or laying.



DOVETAILED HIVE ON A HEDDON HIVE-STAND.

But, to return. A good many people do not know how to hold the Clark smoker properly. I am just conceited enough to think *I* do, and I am holding it in the picture in the right position, valve side down. This way it does not clog up the blast-tube so much when it rests; and when it is on the hive it is all ready, when picked up, to throw a jet on the frames without "whopping" the smoker over.



POSITION OF SLATE TO INDICATE THE CONDITION OF THE COLONY.

1. Queenless; 2. Cell; 3. Hatched virgin; 4. Laying queen; 5. Tested queen; 6. Caged queen to be introduced; 7. Caged queen out; 8. Something wrong; 9. Hive needs supers and more room; 10. No slate—hive with empty combs, ready for a swarm.

LADIES' CONVERSAZIONE.

MISS WILSON AT CHICAGO.

HER VIEWS ON THE NORTHWESTERN CONVENTION.

I attended the convention at Chicago, and enjoyed it very much. The attendance was large, and every one seemed happy. Quite a number of ladies were present. I wish there had been more. Among the many weighty subjects discussed was the grading of comb honey, in which I was specially interested, Dr. Miller and I having had frequent little skirmishes on this very subject.

All seemed quite anxious to have some system of grading adopted, including the commission men present—Mr. R. A. Burnett and Mr. Mandelbaum, of S. T. Fish & Co. But the great difficulty seemed to be to find any two of the same opinion as to what constitutes first-grade honey, second-grade, etc.

After a great deal of discussion the following system of grading was adopted, as nearly as I can remember:

First grade. The sections to be perfectly filled, all the cells capped, the combs straight, and securely fastened to all four sides of the section; section and comb white, and free from propolis and travel-stain, and the honey of uniform color.

Second grade. Sections and comb white, and free from propolis and travel-stain; but the comb may be uneven, although it must be perfectly filled and capped, and may contain as many as three cells of pollen to the section.

Third grade. Sections must be two-thirds filled, whether capped or otherwise, and may be much travel-stained, and of two or more colors in a case.

I will not vouch for these being correct, as I did not take any notes. Slightly travel-stained sections were not put in any grade; but the omission was allowed to pass, in the hope of a revision and straightening-up of things at Albany, as so much trouble was experienced in arriving at *any* conclusion.

I did not suppose it such a difficult task to grade honey, and was quite surprised at the redhot discussion it provoked, although in a perfectly good-natured manner. Had I been asked whether I knew how to grade honey, I should have given an unhesitating answer in the affirmative; and I still think I know how to grade honey for Dr. Miller, for I have had a most thorough training. But after learning what I did at the convention, I fear I might run against a snag the very first thing, if asked to grade in any other locality, for I would have said all first-class honey must be perfectly white, while it will be seen by the grade adopted that first-grade honey may be of any color, from white to the darkest, only so it is all one color. Mrs. Harrison, Mr. Dadant, Mr. Walker, and others opposed its being perfectly white, as, in their locality. Spanish needle, an amber-colored honey, which forms a large part of their crop, is, in their estimation, just as good as the best white honey.

There were quite a number at the convention who expressed it as their opinion that, according to the first grade adopted, there would be very little first-grade honey put on the market. I would not grade as closely as Dr. Miller does. Personally, I can see no reason for throwing a section out as second class simply because the comb is not straight. I also believe that a section that is only slightly travel-stained, say just tinted on the lower edge, ought to be allowed as first class. Neither would I rule one out that has only three or four cells uncapped in one corner of one side, if all the rest of the section were perfect. Nor would I rule out a section if the wood were somewhat stained with propolis, providing it was carefully scraped.

Suppose you receive an order from a man for a lot of first-class honey, and you send him buckwheat. Do you suppose he would be satisfied with it? I don't. We have no fault found with the way in which we grade our honey, but I am not sure how long we could say that if we were to send dark honey as first-class, and that is allowable providing we send a whole case of it. You may say it is to go as first-class buckwheat. I am afraid we are going to get into hot water if we undertake to have so many different kinds graded, and that it will be much more difficult to tell first-class honey than it is at present when each one is allowed to grade according to his own notion. Still, I believe it would be an excellent thing to have a standard system of grading.

Marengo, Ill., Nov. 24. EMMA WILSON.

MRS. AXTELL'S LETTER.

CURES FOR BEE-STINGS.

Nearly every one has his or her cure for bee-stings. May it not be that none of them amount to much, as the poison is injected into the flesh so far that remedies on the outside do not reach the poison? It looks reasonable that, the sooner the sting can be withdrawn, the less poison is thrown into the system. I have noticed the little sting working away for some moments after the bee had left it when thrust into my clothes, still injecting poison. If my hands are not full I always quickly scrape the sting off with a finger-nail, but more often I rub the sting off by rubbing my hand down my side rather than wait to free my hands to scrape it off with my nail, as each moment of delay makes much difference in the amount of poison thrown into the system; therefore a person who is quick in his movements does not get so much poison as one who is more deliberate in his movements; yet, because one moves quickly he will be stung more often. Once at a bee-convention near Oquawka, this State, an old man, an editor, came in; and when an opportunity for him to speak was given he told of a preventive for bee-stings, as practiced by a friend of his, and that was to catch a pig or hog and rub his hands all over on the pig, thus leaving the scent of the pig on the hands. I never had faith enough in the preventive to try it, but I have sometimes wondered why bees were more inclined to sting one person than another, especially when the one stung the least was the grosser in his make-up, often having a rank smell to his breath. Possibly the breath was a repellant, like the fumes of tobacco blown from a smoker. Some of the antidotes to bee-stings are soda moistened with vinegar, and applied as a poultice. Mashed onion, moistened clay or black earth, crushed plantain-leaves, a slice of fresh meat, are good. Scrape the wound with a sharp knife two or three times, then rub it as little as possible thereafter. The more it is rubbed the more will it swell.

As the poison is formic acid, it looks reasonable to use an alkali as a remedy, if any thing is used. After any or all the above remedies are applied, the pain will cease, and so it would, perhaps, just as soon if nothing is used, especially if the person keeps right on with his work so as to forget the sting. The latter remedy is what I use; and the harder the sting pains, the more rapidly I try to work; but with timid persons, especially new helpers at bee-work, they are better satisfied to apply some remedy.

TO KEEP GRAPES.

Bee-keepers and their families are generally great lovers of fruit, and I notice that, as a class generally, they have fruit upon their tables when it is to be had. I will mention how we found grapes to keep well for a long time, even until near Christmas. Pick them carefully, so as not to bruise them or rub off the bloom (that is, the thin white floury substance upon the outside). If any are mashed, pick those off, but do not handle them much. Lay a layer of cotton batting in a shallow box, then, as picked from the vines and looked over bunch by bunch, lay them upon the batting so as not to handle over twice. Now cover over with batting. Lay on top a thin board (our honey-boards are what we use), and cover over with batting; then lay on grapes close together, but not to pile up. Now cover these with batting and tuck up carefully so as to exclude the flies and the air as much as possible. This will cause them to keep sound and plump for a long time—much more so than if hung up, or with paper between them, as some recommend. Some use bran, but we prefer the batting. Set the box or boards away in a cool place where there are no mice to work in the batting. The cellar would be preferable, some say, but we kept ours upstairs where there are no mice. They should not be jostled or handled much after being thus prepared. They will spoil soon after being taken from the batting, as they fall from the stems if jostled.

Another way to put up grapes is to prepare a syrup rich enough to sweeten them well, according as one prefers. Pick over the grapes and put into a jar; heat the syrup to boiling, and pour over the grapes; let cool, and heat again. This time the syrup will have increased enough to cover them. Pour off three times, and scald before getting quite cool the last two times; then seal it up in a can or jar. This treatment will preserve the grapes whole. They look beautiful, and taste very nice. The Niagara, a white grape, looks well thus treated, as it has a tough skin that is not easily broken.

Grape butter is nice made from half grape and half apple. Press the grapes through a colander; stew to a rich sauce, all the while stirring it on the top of the stove. When nearly done, add nearly as much sugar by weight, if to be very sweet; less sugar will make good sauce, or it may be cooked in the oven in a crock with but little stirring.

Roseville, Ill., Nov. 10. MRS. L. C. AXTELL.

CAN BEES BITE?

Womanlike, I should like to have the last word. Dr. Miller says, "Bees have a biter," and I say that they have not; and I'll keep on saying it until I have the last word, until I am convinced that they have a "biter." They have a picker but no biter. They will pick away at the fuzz on muslin until they make a hole; and if they get hold of a raveling they will take a long pull and a strong pull, and a pull all together until they get it out of the hive. Why don't they bite it off? They will pick away at the entrance of a hive, if it is too small, until they raise a fuzz, or nap, upon the wood, so they can grip hold of it and pull off the fine fibers. The bee can not tear open the skin of fruit, or it would do it and feast on the rich juice within. Look at the skin of a grape. It is so smooth that a bee can not get a grip upon it to tear it open. Why are they never drowned in wooden feeders when they would be in tin? Because they can not grip hold of tin or earthen ware as they can of wood.

Peoria, Ill., Nov. 25. Mrs. L. Harrison.

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

Question 198. *What becomes of the greater portion of eggs and newly hatched larvæ in breaking up a colony of bees to form nuclei?*

I think the bees eat them.

Wisconsin. S. W. E. France.

Gone where the woodbine twineth.

Vermont. N. W. A. E. Manum.

I don't know. I think the bees throw them away.

Illinois. N. C. J. A. Green.

I suspect the bees eat what they can not care for.

Ohio. N. W. H. R. Boardman.

I am just as ignorant as "darkest Africa" on that subject.

New York. E. Rambler.

I always thought it was eaten up; but I am not sure of it. It certainly soon disappears.

Illinois. N. W. C. Mrs. L. Harrison.

Whenever there are not enough bees to protect or care for the unsealed brood, it dies and is removed.

New York. C. P. H. Elwood.

They are usually fed, and develop. There are usually enough nurse-bees to care for them, and ought always to be.

Michigan. C. A. J. Cook.

If the nuclei can not take care of the eggs and newly hatched larvæ, why, the bees eat it up and that is what becomes of it.

Michigan. S. W. James Heddon.

I think they are eaten by the bees, as it seems to me they do usually when seriously disconcerted in their plans of brood-rearing.

California. S. R. Wilkin.

I give it up. Tradition says bees eat eggs; but I've had colonies starve, leaving eggs in the hive. I think likely they suck the larvæ out.

Illinois. N. C. C. Miller.

If eggs or larvæ perish by chilling they are pulled out of the cell by the worker bees. However, if enough bees are given to the nuclei but very little brood will be chilled.

Ohio. S. W. C. F. Muth.

"I don't know," and "I don't know" that I care. The eggs are not large enough to sell at the grocery, and the larva is not a merchantable commodity. The bees may eat both eggs and larvæ for all I care, and may be they do. I have thought they did, but never caught them at it.

Ohio. N. W. A. B. Mason.

The bees are accused of eating them up; but until somebody gives us positive evidence on the point, perhaps we should not be too sure. The confusion, and lack of home feeling incident to dividing, may cause them to be neglected till the eggs are worthless and the small larvæ dead.

Ohio. N. W. E. E. Hasty.

My idea is, that what are not preserved are eaten up by the bees. I have often seen bees eating eggs, and, in times of scarcity, larvæ are eaten; while, if the colony is reduced to starvation, or nearly so, the pupæ are taken from the sealed cells, sucked dry, and thrown out of the hive.

New York. C. G. M. Doolittle.

I am not positive as to the manner of their departure, whether they mostly die from neglect or whether, canniballike, the workers devour them; but when nuclei have been deprived of their queen their strongest instinct seems to be to provide themselves with another. Their interests are liable to suffer till this is accomplished.

Wisconsin. S. W. S. I. Freeborn.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE VALUE OF FRENCH YELLOW-OCHER PAINT; BY A PRACTICAL PAINTER.

Friend Root:—I want to say, as a practical painter of 27 years' observation, I never found any paint to bear exposure to the weather better than genuine French yellow ocher mixed with pure linseed oil and japan, prepared for outside work, in proportion of six to one. Apply two thin coats, dry thoroughly, and cover with another, colored to suit you. I prefer a pale straw color as being the most durable. I used to think paint applied in autumn lasted one-sixth longer than if applied in the spring, or one-third longer than if applied in the summer. I still think so. Paint fence-posts where they come six or eight inches above, and also below the surface, with two coats of linseed oil and finely pulverized charcoal, and you will find any sound timber makes a durable post. Posts should be well seasoned.

Allegan, Mich., Dec. 5. W. H. Gardner.

SENDING QUEENS TO AUSTRALIA.

In reply to my advertisement in Gleanings, August 1 and 15, I have this month received three queen-cages—two from J. F. Michael, German, Darke Co., O., and one from Walter S. Pouder, Indianapolis, Ind.; but, I regret to say, with the exception of one of Mr. Michael's cages, where there were four living workers, every thing was dead. Still, the unfortunate bees had not had a fair chance, as Mr. Michael sent his first cage on Sept. 2, and the other on Sept. 8, and both, of course, arrived here on the same day (Oct. 16), thus making their passages 38 and 44 days respectively. Mr. Pouder sent his in a small cage, 2¾x1⅞x¾, with only one 1½-inch opening ½ inch deep—a very neat pretty cage, certainly, but I think hardly suited for such a long journey. Mr. G. M. Doolittle has

succeeded in sending me three of his extra select tested queens, with which I am very much pleased indeed. ÆNEAS WALKER.
Redland Bay, Queensland, Australia, Oct. 30.

[A part of Mr. Michael's failure was due to the fact that he did not send the queens so as to be just in time to go on the steamer that sailed direct. Those who send queens to the islands of the sea should endeavor to deliver their queens to the port on the day or day before the steamer is to sail. If you have no means of ascertaining this, write and we will let you know. Mr. Doolittle's queens were sent in our kind of cage, as per our instructions, and went through in good order. It simply shows that, if any one follows faithfully our method, he will be pretty apt to have success.]

FOR THE FIVE-BANDED BEES.

Ewing's experience with the five-banded bees, as given in GLEANINGS, page 930, is just the reverse of mine. About two years ago I bought a fine yellow queen of Mr. Hearn, and in due time had a colony of the brightest yellow bees I had ever seen, and the only one among 100 that I had the courage to open without smoke or veil. I was so well pleased with these beauties that it has been my queen-rearing colony ever since. I do not really think there is any Cyprian blood in this gentle mother. A. B. BAIRD.
Belle Vernon, Pa., Dec. 5.

[We are glad to get this testimony, friend B. Although some of the five-banded bees have been pretty strongly tinctured with Cyprian blood, as we know by experience, not all of them have been so. Those bred by Mr. G. M. Doolittle and Mr. Hearn we know were bred by selection from pure Italian blood.]

BEE-KEEPING NOT ALL GOLD.

I tell you, Mr. Root, bee-keeping is not all gold. I had 6, spring count; increased, by buying one, to 11 stands. Honey I received was about 30 lbs.—an average of 5 lbs. to a stand, spring count. I have laid out between 50 and 60 dollars in cash. Will that pay to keep bees? I look forward for brighter days in bee-keeping. JOHN SLAUBAUGH.
Eglon, W. Va., Nov. 26.

[Your bees will probably pay you better if you give them more of a chance. No, indeed, bee-keeping is not all gold; but it pays in general as well as farming. There is a hue and cry among certain classes that farming does not pay, and the same may also be said of a great many other rural industries; but that does not prove that none of them ever pays.]

TO SHARPEN SHEARS.

Friend Root:—Your directions for sharpening shears are excellent, and will put the shears in first-class order, I know. The only trouble with it is, that not more than one person in fifty will take the trouble to fix them in that way, but will use dull shears as before. To sharpen shears in three minutes, put them in a vise, and file the edge until the edge is wired the whole length. This do to both blades. Now carefully shut the shears, which will take the wire off both blades, and leave them in the best possible condition for cutting. Of course, the rivet must be right, and the edges should touch the whole length. C. W. COSTELLOW.
Waterboro, Me., Nov. 25.

JONES'S AVERAGES.

Friend Root:—As you made a request some time ago through GLEANINGS for me to make a report as to the daily average of my scale hive during the basswood flow, and the average amount taken per colony during the season, also the number of colonies kept in the vicinity, I herewith take the liberty of sending you the amount gathered by my scale hive the past three years, showing the daily gain, as well as average gain, per day, and average amount per colony, and the number of colonies kept in the vicinity during each year.

1891.

July 12	12	lbs.
“ 13	19	“
“ 14, too wet	0	“
“ 15	12	“
“ 16	24	“
“ 17	15	“
“ 18	21	“
“ 19	16	“
“ 20	17	“
“ 21	13	“
Total for 9 days,	149	

Daily average, 16 lbs. This was not the end of the flow, but I failed to keep the tally; 130 colonies in my yard, and over 200 within one mile. Amount taken per colony, 83 lbs., all extracted. In each year my scale hive has contained the much-abused hybrids. Score one for the hybrids, even if they do sting.

1890.

July 12	14	lbs.
“ 13	16	“
“ 14, full	8	“
“ 15	15	“
“ 16	20	“
“ 17	16	“
“ 18	15	“
“ 19	16	“
“ 20	16	“
“ 21, full	8	“
	144	lbs.

This colony swarmed; after, I kept no account of it. Daily average, 14$\frac{4}{10}$ lbs. per day; 100 colonies in my own yard, and 100 more within one mile. Amount taken per colony, mostly extracted, 80 lbs. These amounts were taken in the time of basswood only.

1889.

The following daily record shows the amount of honey gathered per day by one colony during the basswood flow of honey for the year 1889:

July 11	7	lbs.
“ 12	16	“
“ 13, too damp	4	“
“ 14	19	“
“ 15	20½	“
“ 16, lack of room	10	“
“ 17	19	“
“ 18	19	“
“ 19	26	“
“ 20	19	“
“ 21	22	“
“ 22	15½	“
“ 23	21	“
“ 24	25	“
“ 26	9	“
“ 27	0	“
Total,	250	lbs.

Average, 16⅔ lbs. per day. There were 275 colonies within half a mile of my bees; with our own average amount taken per colony, mostly comb honey, 52 lbs. F. B. JONES.
Howard Lake, Minn., Dec. 4.

NOTES OF TRAVEL

FROM A. I. ROOT.

But the fruit of the Spirit is love, joy, peace, longsuffering, gentleness, goodness, faith, meekness, temperance: against such there is no law.—GAL. 5:22, 23.

MITCHELL, SOUTH DAKOTA.

Nov. 22.—In consequence of delayed trains I reached here Sunday morning, just before daylight. Of course, I do not propose to travel on Sunday; but when a train is late, we sometimes *have to* travel a little. I confess I was tired, and somewhat homesick. The latter was caused, probably, by the profanity and blasphemy of some of my fellow-travelers who seemed to think it a fitting way to usher in God's holy day. As it is bleak winter here, I got a room with a fire in it, slept two hours, then took a bath, and dressed for church. I was almost the first comer at the bright new Congregational church, and the pleasant "good - morning" from the janitor made me feel at home and among friends. Dear reader, are you looking out for the stranger when you attend your place of worship? Oh what a *nice* lot of people came there that morning to worship! How their faces and their ways contrasted with those I had met with the day before! I had decided this time not to push myself forward, but to wait and see whether the Holy Spirit would make it plainly manifest that I was wanted among these people who were all entire strangers. In the Bible-class, a lady who sat opposite looked hard at me several times, and her face seemed in some strange way more or less familiar. After meeting I found that she and her husband, C. M. Peck, were from Medina Co., O. He is in the employ of the American Sunday-school Union, and goes all over South Dakota, starting Sunday-schools, holding meetings in schoolhouses, reviving the weak schools, starting them when they have run down and been stopped, and, when destitution prevails in winter time, he distributes clothing, shoes, etc., and sometimes food as well. He is, in fact, a general missionary, going everywhere in his field doing good, and finding out the general condition of affairs. Is it at all strange that he is a man generally loved and respected?—one of God's *anointed* ones, is the way I should tell it. While eating my dinner after our pleasant Sunday-school, the genial young proprietor of the Mitchell Hotel laid his hand on my shoulder in a homelike way, and whispered that I was asked to address the 4 o'clock meeting at the Y. M. C. A. rooms. I talked 40 minutes, mainly in regard to the damaging effects of profanity and blasphemy on any town or community, and upon its ruinous results to both soul and body. Some of my hearers told me afterward I had not been doing quite justice to Mitchell, and Dakota in general. Like Iowa, the State is under prohibition, and there is not only no saloon in their pretty town, but not even an indication of one, and no sort of bar anywhere about any of the principal hotels.

Years ago a pleasant-looking man came to me one Sunday morning and asked permission to go with me to jail. Of course, I gladly assented, and, when there, I asked him to talk to my class of prisoners. I shall never forget that talk; and when I found that this brother held an important government office here in the city I felt glad again. R. N. Kratz is a "twin brother," if I may be allowed the expression, of brother Peck. As there is nobody in jail in Mitchell, and, for that matter, in the country round about, friend K. talks to the boys who are *not* in jail. Come to think of it, I guess he gets them *before* the jail does, and takes them to the Y. M. C. A. rooms instead. Everybody around Mitchell seems to delight in speaking well of him; and although the government gives him quite a large salary, it was whispered to me that he uses nearly if not quite half of it in working for Christ Jesus. Will some of the good brothers who read GLEANINGS make a note of the fact that not *all* the men who hold offices that give good salaries are *bad* men? Well, a revival is going on now at the Methodist church here. It really does seem as if these Methodist people were *always* having a revival. Well, what do you think? Why, the minister sent word to me that he would like to have *me* conduct the work in the *inquiry* room in the Methodist church, toward the close of the service that evening. I don't know whether he knew I was a Congregationalist or not—may be he thought it didn't matter. Well, brother Peck got into that room in some way, and he is a Congregationalist *too*, mind you, and a good one, and he followed my exhortation with the most earnest personal work, first with one of the seekers and then another; and then brother Kratz, who is a *real* Methodist, backed us both up. Well, I tell you it was a grand Methodist revival. A young man who was near me said he could not "fully surrender," and I told him to surrender all he could, and trust Christ Jesus for the rest. His pastor came up behind me and indorsed what I said, and our young brother was soon happy, and smiling through his tears. Almost every one who came into the room gave their names to the minister, to be taken into the church. When we disbanded I was astonished to find it was 10 o'clock; but the pastor had 20 names of young people on his paper, but I believe it included a few who received baptism in the morning. It seems a little funny, but my last Sunday evening in Medina was spent in a Methodist revival meeting.

When I awoke this morning my next-door neighbor in the hotel was singing softly to himself, "Other refuge have I none." I found a young lawyer sitting by the stove reading "Ben Hur," and Mrs. Peck says every Sunday morning he goes through the hotel office and invites all to come to church; and he "gets them" too, frequently a whole long seat full. Now, dear reader, if one were inclined, and in the mood, he might find fault—yes, a good *deal* of fault with several things around here—yes, even with the Methodist revival, and with a good many things your humble servant said and did; but people here are not in a fault-finding mood just now, for *don't you know*—"the fruit of the Spirit is love, joy, peace, longsuffering, gentleness, goodness, faith, meekness, temperance"?

GETTING TURNED AROUND.

I came into Mitchell in the night, and all day Sunday was cloudy, so it is not strange that I got north south, and *vice versa*. Everybody told me my mistake, but it did no good, and I went all over the city, and took "landmarks," as we say of the bees when they take their first flight. Monday morning friend Peck took his Sunday-school horse, "Maud," and carried me out in the country. When the sun came up, *that* straightened me. I believed the sun, when I couldn't believe anybody else. Well, we came into the town from a new direction, and I took new "landmarks" with the sun in the east, where it should be. I visited many people, and stores and offices, and learned location; but, alas! when I crossed the territory I had explored on Sunday, there seemed to be *two* Mitchells, or two A. I. Roots, and I couldn't exactly say which. The depot is at the end of the street; but as I sit here writing I can not actually say whether it is up street or down street. I suggested to a friend that my mind was mixed up in the matter, but he corrected me by saying: "No, Mr. Root, your *mind* is all right, but it is your *feelings* that are misleading."

Now, here is a great truth. Our feelings—or, if you choose, our animal instincts—are often very powerful, but they must not be trusted. Reason and *right* should direct and manage feelings, for feelings are only like the dumb brutes around us; they are to be taught and led, and should *never* be allowed to obtain the mastery.

THE ARTESIAN WELLS OF SOUTH DAKOTA.

You know I have been all my life interested in every thing pertaining to wells and springs. Well, I knew there were some wonderful artesian wells somewhere in this locality; but it was an agreeable surprise when I learned there were two in Mitchell that supplied the city with water, and 18 in the county, in actual operation. Besides this they are now at work on a large one which they hope will run a dynamo for their electric-light plant. I became acquainted with the workmen, and found the boss was present at my talk to the Y. M. C. A., so we were old friends at once. Now, don't think me visionary when I say there really seems to be a sort of connecting link between the revival meetings I have spoken of and these wonderful artesian wells. You know what I said in our last issue about the promise, "If ye abide in me, and my words abide in you, ye shall ask what ye *will*, and it shall be done unto you." The wonderful fertility of Dakota's vast acres has only needed water at the right time; but the past has shown that the needed rain is often lacking. Just in the nick of time the discovery of these wells came in. Already has *over 60 bushels of wheat* per acre been obtained by means of irrigation with water from these artesian wells. This 24th of November I am writing in the town of Woonsocket, famous on account of having, at least at one time, the largest artesian well in the world. It is six-inch bore, 725 feet deep, and gives 4000 gallons per minute. A steam-gauge shows 153 lbs. per square inch, and it will throw a two-inch stream *200 feet high.* The force has been estimated equal to a 200-horse-power engine. I have just had a real pleasant visit with the proprietor. The town has had a noted well for about two years. Our friend, who owned a steam flouring-mill, offered them $1000 a year for the use of it for power; but as they refused he put down the well I have described, at his own expense, near the mill. It cost him altogether about $5000, but the mill is now running night and day, entirely without engineer or fireman, and he will save almost the cost *in one year.* With natural gas we need an engineer; but this is power direct—yes, direct from the hand of Him who said, "Ye shall ask what ye will, and it shall be done unto you." After the water has carried the mill it is just as good for irrigation; in fact, one of the problems has been to get rid of the surplus water. As I write, the boys are shouting and laughing while they skate on a beautiful lake formed by the surplus artesian water. It seems almost ridiculous to think that little water-motor can move the pulley that carries the great driving-belt of the ponderous machinery of that grist-mill.

There are some other wonderful things about Dakota. It is never muddy anywhere. The roads, even off across the prairies, after they are just a little traveled become almost as hard as an asphalt pavement. Even when the water from the wells comes over the road, the bottom remains hard and solid. Now, you smile incredulously when I tell you that the same black soil, when plowed, becomes fine and smooth, with just a *little* harrowing. Much of the plowing is done in the fall, because the ground never packs. It is always too loose, if any thing; it is also never too wet; and I judge they are right in saying that tile drainage is not needed. Wheat is 68 cents; corn, 25 cents for *two bushels;* 28 cents for 70 lbs. of shelled corn. Eggs are, however, 20 cents a dozen. You see this just "fits" poor people. Potatoes are 20 to 25 cents. It looks odd and lonesome to see no forests. The bare ground touches the sky in every direction. There are few if any fruit-trees, except plums, yet small fruits all do finely. With irrigation, and the large amount of sunshine that Dakota has the year round, it should do wonders, and has done wonders already.

While I write, a lady tells me that, when the town well was first drilled, they had trouble in controlling it, and it came near flooding the town. It was near Christmas, and the water kept freezing and piling up until it began to look as if they would all be driven from their homes. Many of the cellars were filled with water. Just think, reader, if you can, of over *200 barrels per minute* on a comparatively level country, and no means for it to get away! You can get a very good idea of one of these wells by looking at the picture I have already referred to. The water is too hard for washing, but many of the hotels use it in the rooms. In winter they cut cakes of ice and melt it, and this water is soft enough for any purpose. The mineral seems to separate and flow away by freezing.

Now, then, I am going to astonish you still more. See this, from a neighboring town, which I clip from a special issue of the *Dakota Farmer* for May, 1891:

> Innumerable fish are thrown up in the water from the well. These are usually from an inch to two inches in length, having eyes, and, to all appearance, are the same as are found in fresh-water streams. In the pond of water formed by the well these fish have grown to be eight or ten inches long. With ordinary care they thrive in aquariums; and should any one doubt this, by paying for a fruit-jar and the express charges, I will send him samples of the hourly installments from 1274 feet below the surface. Where do they come from? Certainly not from surface water in this or any adjoining counties. Possibly from the Missouri near Fort Yates, where large quantities of water disappear in coarse sand between strata of fossiliferous rock of the Jurassic formation. J. W. PARMLEY.
>
> Ipswich, Edmonds County.

Woonsocket is another nice pleasant Dakota town. How very kind and friendly everybody seems! and how ready and willing to drop their own work to assist me in hunting up every thing in regard to artesian wells!

Has the world so changed, or is it *myself* that is changing? O my dear friend, please believe me when I try to tell you that it is our own selves and not the world that *needs* changing. When He abides in us, and we in Him, *marvelous* things shall come to pass. I love this nice pretty room where I am, and I love these people who are trying hard to keep a nice good hotel. An ungodly and profane runner said the Dakota towns were full of empty buildings. Well, I have *found* some of them. They are the buildings that have *screens* before the windows so you can not look in and *see* what they have to sell, and what they are doing inside. And there is *another* building that is empty too. It is the one with *iron bars* across the windows—iron bars to keep our boys from getting out—boys reared in this land of liberty! May God be *praised* for *these* empty rooms in the Dakota towns! As I go up one street and down the other, large, clean, and clear glass windows let the full light of day into every shop and store, and tell to the passerby, as plainly as possible, all the proprietor has for sale.

Good-night, dear reader. I am going to pray for you; yes, for every one who cares to read these words I am writing. The waters of the artesian well are hissing and babbling and bubbling near my window; and would it be strange if I *dreamed* of this new and great gift, right from the Father's hand?

Nov. 25.—I have just visited the farm of C. E. Hinds, 1½ miles from Woonsocket. On the highest point of his land he has a three-inch well that gives 500 gallons of water per minute. Around the well is a reservoir holding a million of gallons. His men and teams did it at odd spells, at a cost not exceeding $80.00. A series of ditches and flumes, when needed, take the water to every part of his farm. A man appointed by the government visited him, and gave him instruction in managing the water. He secured about 250 bushels per acre of potatoes, by running water between the rows, and 60 bushels of oats per acre. He is full of enthusiasm, and is preparing for wheat next season. Only spring wheat is raised here.

Quite early in the morning I was down by the outlet of the flouring-mill. The water was steaming at such a rate I knelt down and put my hand in it. I then procured a thermometer, and found it 61 degrees. I told the people that if this water were led around their rooms in coils of pipe, it would warm them enough for all ordinary work; but no one had any faith in it. It would cool off, they said. I looked over the town a little; and as the sun came up and it began to thaw, I pointed triumphantly to where the snow was all thawed off from the black ground, wherever a water-pipe ran, and these pipes are as much as a foot under ground in places. Our readers will remember that water is always running in these, and so no protection from frost is needed. As the water is always running, one of the problems is to get rid of the surplus. The millmen have been obliged to construct over three miles of ditch to get the water into the river; and at one time the artesian wells came very near flooding the town. When the well was first opened it threw out 40 or 50 carloads of sand and stones. This sand was carried away by the townspeople and railroad folks for building purposes. It throws sand and stones now whenever the pipe is opened full width; therefore they do not like to do it, lest the stones should injure the water-motor. If this surplus water were run in pipes under the beds of greenhouses and cold-frames it would warm them up enough for lettuce, radish, spinach, onions, and a great variety of hardy vegetables. For poultry-houses I believe 60 degrees would be better for the fowls than a warmer temperature. What a field for the egg business!

While investigating the matter of the temperature of the water I must have become somewhat enthusiastic. I found I could not get the thermometer down into the steaming, rushing water, where it came from the mill, without getting down on my knees. A light snow was on the ground, but I felt sure it would brush off readily. Imagine my confusion, when I had passed clear through the town, to hear Mr. Hinds, the banker, say:

"Mr. Root, I think you must have been down on your knees somewhere this morning." And when I looked down, there was a great patch of snow and grass on each knee.

Nobody knows just how many artesian wells there are now in this region—certainly more than 100 deep wells, with high pressure, and more being drilled every day. After the well is once drilled, no power on earth can compete with them for cheapness and regularity of speed. Speed-testers show that the rate is almost exactly the same, day after day; and for flouring-mills this is a very important feature.

All through Dakota, at the hotels and railroad ticket-offices, I found very pretty framed notices of the various Sunday services, and also prayer or Endeavor meetings, during the week. This is of very great convenience to the traveler, as I know by experience, for he may inquire of many individuals, and then not find what he wants. Dakota people are very loyal to their State, and quite sensitive in regard to any thing reflecting on their climate, resources, people, or intelligence. They don't like to talk about the blizzard of some years ago; but when a storm or cyclone does damage in the East, they comment quite freely on the fact that the older States are really *more* unsafe than new Dakota. A disastrous storm has just been reported over many of the Eastern States, and special damage is reported in New York city. While in Woonsocket on the evening of the 23, I heard some one going about and inquiring the name of the mayor of New York. I, with the rest, pleaded ignorance; but the next day I found the following in a Dakota daily:

TO AID SUFFERERS.

WOONSOCKET'S MAYOR TENDERS SYMPATHY OF A PRACTICAL NATURE TO STORM SUFFERERS.

Special to The Daily Press.

Woonsocket, Nov. 24.—The mayor of Woonsocket has wired the mayor of the city of New York as follows:

"The council has voted $1000 for the aid of storm sufferers. Indian summer out here."

The magnitude of this joke becomes more apparent when we remember that Woonsocket is only a little village, comparatively. That about the Indian summer is put in because Eastern papers have so much to say about the intense cold and great winds of the west.

SIOUX FALLS—THE CITY OF JASPER.

Thanksgiving day.—While waiting for a train I visited Col. Drake's springs, where two millions of gallons of the brightest, purest, clean soft water flow from the jasper rock every 24 hours. At some former time a good deal of money was expended here; but just now the place shows much evidence of decay and neglect. A large circular stone reservoir is around the iron pipe, and the water stands perhaps a foot above it; yet it is so clear the pipe is plainly visible while its volumes of crystal coolness gush forth. In many parts of Dakota, even out on the prairies, great rocks are seen of jasper. This is a very hard reddish stone, much like the carnelian that was so fashionable for finger-rings years ago. At Sioux Falls the river flows over these jasper rocks, and has, in ages past, worn them down in many wonderful shapes. The falls is a succession of irregular steps, 90 feet in all; and the flinty quarry furnishes the most beautiful building-stone without limit. Many fine buildings (including the magnificent new court-house) ornament the city, made entirely of jasper. The Illinois Central R. R. depot is such a gem of stone architecture, all of jasper, that I took it with my Kodak. It will appear in a future issue. Right near the falls an immense flouring-mill, all of jasper (as well as the milldam too), startles the passerby. The flume that carries the water to the wheel is of boiler iron, and large enough to drive a horse through. The capacity is something like 500 barrels of flour a day; and yet, after this abundant harvest it is standing idle! When I inquired why this was, the answer came, *litigation!* Does any one know what *sin* costs us as a people, *in hard cash?*

Very few farmers make any use of manure in

Dakota. It is either banked about the houses, used to fill sinkholes, or carted out on the commons to waste. One obstacle is that it makes this dry light soil still dryer; but artesian wells and irrigation will remedy that. Or letting it rot in properly constructed piles will fix it. Those who have taken the trouble to use it have found that it increases the yield almost if not quite as much as in the Eastern States. The tendency is to farm such very large areas that they can't take time to spread manure. The same with keeping grass and weeds out of these immense cornfields. I feel sure it is a mistake, just as it is in the older States. Many are husking corn as our train passes. The wagon is taken into the field, and the corn thrown in as it is husked from the standing stalks. To prevent the ears from flying over, a light panel, or fence, is attached to the box on the opposite side. After the corn is off, cattle are turned in, and they seem to greatly enjoy twisting the small ears that are left, and taking what they choose of the fodder. This is, of course, a wasteful way, but it is cheap. In many fields the furrows are so long one can hardly see where the end is. In some localities the ground is already plowed almost as far as we can see. The coal-black soil makes it look almost as if the land had been burned over. Sioux Falls is called the largest city in South Dakota, and, if I am correct, Mitchell next.

Timber-planting has been rather a failure, except in favored localities. The dry summers are probably too hard on the trees; and the cottonwood and elm, that were used mostly, are trees that seem to demand rather damp low ground. I have seen some very fine timber-belts where some of the trees are nearly if not quite a foot through. The railroad company have planted trees extensively for snow-breaks; but as these are needed only on ground higher than the track, the location is unfavorable for the cottonwood and elm. Firewood is $9.00 a cord; and the coal principally used, $10.00 per ton. Dakota is at present rather lacking in fuel. The number of great fur coats, looking almost like huge buffalo-robes, seems to indicate the severity of the winters usually.

When the sun comes out through the clouds so as to light up the prairie in the far distance, the effect is very striking, especially when it strikes the great fields of corn. Once I saw some like the mirage on the desert—glittering sheets of water, with islands and trees, and the conductor told me such appearances were not uncommon. None of the passengers seemed to see it except myself, and I fear it is because they are not, as I am, *in love* with nature and nature's God.

Nov. 26.—At Sioux City I saw the wonderful corn palace; but it was during a snowstorm, and after dark, or I should have taken a Kodak picture. It is a structure of magnificent proportions, and a gem of architectural beauty, the ornamentation all being done with *corn*—yes, corn—red, white, and yellow ears of corn, whole and cut up in thin slices. It looks something like the handsome Indian beadwork; but the corn gives it a tinge suggestive of autumn and home on the old farm. I inquired for religious meetings, thinking there would be some on Thanksgiving night. At length I heard a band playing, and thought it must be to call people to the theater; but the tune seemed strangely familiar. Yes, it was one of our revival Methodist hymns. Why shouldn't they play on horns at a theater, any way? Alas, dear friends, our theaters are not, at least yet, for Christ Jesus, and they *dare not* play a gospel hymn. It was the Salvation Army, and I felt glad to be one of the crowd that gathered round them, out in a snowstorm on Thanksgiving night. The music alternated with testimonies from those who had been saved; and although I once enjoyed the music of the theaters, never was *any* music before so inspiring as this from these humble people who sang praises to the Lord of all. A bystander told me they were doing a great work among the Swedes and Norwegians, and many who would doubtless never have heard of the gospel otherwise. Many testimonies came from those who had been saved from drink. A quiet humble woman told of a painter who could not paint her house without his frequent drinks. She talked with him and he confessed his bondage, and said he would give any thing to be freed from it. She told him, as well as she could, of the "Lamb of God that taketh away the sin of the world," and now he has passed his second Thanksgiving, a redeemed sinner.

Thrashing-machine men are having a bonanza through the wheat regions, and it will be kept up all winter when the weather permits. In these regions of little rain, all kinds of grain, and even hay, are damaged comparatively little, even if left uncovered.

Between Sioux City and Council Bluffs we had our cars lighted with gas, and the light is sufficient to read even fine print with the greatest ease. We see the same arrangement overhead between Omaha and Denver. Near Columbus, Neb., we see the corn-cribs full to overflowing, and great heaps piled outside up against the crib. There are also *miles* of haystacks, and no fences to show where one man's farm ends and another one's begins. The conductor says it is wild grass, but about as good as timothy. The only farming that has ever been done on it is to cut the grass and bale and ship it. Baling-machines are now at work, and teams are drawing it to the stations on the good hard roads.

GRAND ISLAND, NEB.

Did anybody *ever* see so much corn? Every field is a cornfield, and every field is dotted with wagons, picking and drawing corn, and near every farmhouse, almost, are great *stacks* of ears. Surely no one on the face of the earth should starve if the corn can be carried to them. It is raining now; and were it *my* corn I should worry about its getting *wet;* but it doesn't seem to worry the people here. There is considerable timber here, that was planted out years ago, and it seems to have done considerably better than that in Dakota; but I don't believe any has been planted of late years. Very few bee-hives were seen through Dakota, probably because of lack of both clover and timber; but I am told bees do quite well through here.

We just passed a mill with bags of grain piled around the door clear up to the windows of the second story, and (it is raining) out in the rain too. People didn't stop hauling, and a thrashing-machine kept going. These people must be "hustlers."

GREELEY, COL.

Again, the second time in my life, I am permitted to gaze on the snow-capped peaks as they pierce the very clouds. Oh, how I wish all the readers of GLEANINGS could be with me as I stand here alone and gaze spellbound! So near do they seem, I can hardly believe I could not reach them on foot before sundown; yet they all tell me it is 30 or 40 miles, even to say nothing of climbing to the summits, which are more than a mile above the level land.

Did you ever! The bee-keepers round about Greeley had called a convention, to be held this Saturday afternoon, before any one thought of seeing me here. It was quite a surprise to all of us, and we had a very pleasant time. Quite a number of ladies were present, and a permanent organization was formed. I came into the place an utter stranger, but found a host of friends to say good-by to in only a few hours. In a couple of hours more I was in the great city of Denver. I registered at one of their fine hotels; but before bed time our good friend J. L. Peabody (whom some of our readers may remember as the maker of the Peabody honey-extractor years ago) insisted I should get my things and make *his* home *my* home. One would think, from the welcome I received, we had been acquainted for years.

Dec. 1.—Before I forget it I want to speak of the region around Greeley as being the potato-field of the world. To get the crop safely out of the way of the frost, they build great pits, or caves, that will hold, say, 10,000 bushels each. They are large enough so a team can drive right in and out. The top is covered with poles, then brush, then weeds and straw; over this they put a foot or more of dirt. The great body of air inside keeps it from freezing. I saw perhaps a dozen or more of these pits while traveling four or five miles with my good friend Chas. Adams. Friend A. has a pretty home away out among the alfalfa-fields, and round about him are something like 300 colonies of bees. Last year he had 17,000 lbs. of honey; but the past season has been comparatively poor. Honey sells here entirely by the section. At wholesale they get from 10 to 12½ cents; but it is retailed by the grocer at 15, 20, and 25 cents. They do not stop to weigh, and, as a rule, they do not split a nickel.

Not only the air but the soil is dry and clean the year round—no mud. A little two-year old was running all around bareheaded, rolling on the ground, and playing with the kitten, even when the snow lay in patches here and there. If they rolled in the snow it didn't seem to be cold, and several times I was really tempted to think that it was *dry* snow, even when melting. The dry prairie soil takes up the moisture very quickly.

I could hardly think it possible I should spend another such a Sunday as the one in Mitchell; but I found the great city of Denver not a whit behind in spirituality. I went to the jail and talked to about 200 prisoners. They had evidently been preached and prayed to, for a great part of them lounged carelessly away, even during the talk, as much as to say they had no particular interest in the matter. I wondered if it were not possible to reach these boys and hold their attention by some plain talk in their own language. I prayed for grace to win them, and at least get their full attention. I succeeded fairly well; and when I closed they were so near me I could easily shake hands with them. A great part of them were not hard-looking boys at all; and some of the faces I shall remember for a long time. Denver is a great city of 140,000 inhabitants, and something like 50 miles of street railways—cable and electric. Horse-cars are now almost unknown, and all new lines are electric.

Rev. K. A. Burnett is one of the most live and energetic evangelists I ever knew. It was my good fortune to make his acquaintance at friend Peabody's. He not only labors in all the churches, Y. M. C. A.'s, Endeavor meetings, etc., but he works all day long wherever he is. As an illustration, he heard a man swearing on the street and accosted him something like this: "O my dear friend! where did you learn to use such awful words? Surely your mother did not teach them to you, did she?"

The man stopped, stared at him, and said, "My *mother!* what do you mean? I want to tell you, sir, my mother was a good woman." The man was set to thinking, and was not offended. Well, now, I have a good point for millionaires, at least one of them. John Wanamaker is one of two wealthy people who keep good brothers at work laboring hard every day to reprove sin and to lessen crime.

I have just got hold of a good point for market-gardeners. A man whom we visited bought five acres in the suburbs of Denver, for $500. This was 14 years ago. He improved it and raised good paying crops on it year after year, near to market. Two years ago he sold *half* of the five acres for $27,500. The lesson is this: A market-gardener can purchase land in the suburbs of any growing city; and if he is active, and has purchased wisely, he can *surely* pay the interest on the investment; and if the land does not advance he is not like the speculator—dependent on advance.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

In the multitude of counselors there is safety.—PR. 11:14.

MR. DOOLITTLE has succeeded in sending queens to Australia in our cages.

THERE is one thing that bee-keepers should remember—that choice comb honey always finds ready sale at a good price; but a poor article has to go begging for a customer.

WE wish our bees outdoors would *stay* in their hives on bright days, but too cold for flight. Many of them are lost, and unable to get back. There is this advantage in cellar wintering: Changes of weather do not lure the bees out on days that *seem* warm and pleasant.

A RUMOR is afloat that Mr. Frank Benton, now in the employ of the government at Washington, D. C., is about to start on another expedition under the auspices of Uncle Sam, to hunt up the *Apis dorsata* and other races of bees. If experience in this line of work is any requisite, Benton is the man.

JUST as the last forms of this issue are going to press we have only room to state that the North American at Albany was an interesting and profitable convention. We will have more to say regarding it in another issue, and also of the visit of W. Z. Hutchinson, C. P. Dadant, and Hon. J. M. Hambaugh, at the Home of the Honey-bees.

IT will be remembered that, in the beginning of the current year, there was quite a crop of bee-journals—some five or six. At least four, says the *American Bee-Keeper*, have dropped out of the struggle. We are glad to know that the latter has been a financial success from the start. It is the old, old story of the survival of the fittest—the best on top.

THE senior editor, while at Salt Lake City, had another attack of his old sickness. While we were a little worried for fear he might have another run of fever, we are glad to say that, from last accounts, he was so far improved that he was able to resume his journey. The folks at home desire, above all things, that he husband his strength—that is, let a good many things go unseen if need be.

OUR readers are of such a class that it is almost unnecessary to caution them against "green-goods" circulars that are being sent through the mails. The blackmailers pretend to be your friend, and that, if you keep the thing a secret, they will give you a pile of counterfeit bills that can not be told from the genuine, for about a tenth of their donominational value, in *good* money. If you are fool enough to be "taken in" they will meet you at a certain point, show you the "green goods," which you would say look like the genuine. You purchase a box of them, and before you get away they manipulate the box and you get one of sawdust. This you discover, too late, and your good money is gone. Several of these schemers have been arrested; and their plans, which are essentially the same, have been exposed through the great dailies of the country.

Our friend J. M. Jenkins, our Southern supply-dealer at Wetumpka, Ala., has been passing through deep waters. It is only recently that he lost a child; and now the companion of his home, his wife, is taken away by that dread disease, consumption. A letter just at hand tells its own sad tale:

> *Friend Root:*—After a year's suffering, my beloved wife passed from death unto life this morning. She died as she had lived—happy, and full of faith and love and peace. "Blessed are the pure in heart, for they shall see God." J. M. Jenkins.
>
> Wetumpka, Ala., Dec. 2.

The brotherhood of feeling is so strong among bee-keepers that we are sure that we voice the sympathy of them all. Friend Jenkins is an earnest Christian, and knows *how* to take these trials.

It was intimated, at the Northwestern convention, at Chicago, Nov. 19 and 20, that commission men—at least some of them—are in the habit of quoting a lower price in their market reports on honey than that at which it is actually sold. There is a chance and a temptation here for a little dirty business, we know; and while we are sure that most of our commission men would be far above such deception or theft, there may be a few who are guilty of it. This is something that bee-keepers themselves can determine without very much trouble, if they have a mind to. If there are any such (and we hope there are none who do it), and we get the proof of it, we will give them a little free advertising—not of the agreeable sort, however. We have carefully looked into the responsibility of every one of our honey-merchants (those who report in Gleanings), and we do not believe that any of them are guilty of any such disreputable piece of business. If there are any such, however, let the facts be known. Of course, where a honey-merchant buys the honey outright, that is a different matter altogether. Our remarks apply only to those who sell on commission.

FOUNDATION AND FOUL BROOD, AGAIN; IS THERE DANGER OF INFECTION?

In the *American Bee Journal*, page 713, Mr. S. Corneil, of Canada, a gentleman for whom we have a very high personal regard, both as a scholar, scientist, and bee-keeper, still insists that foul brood may be spread by foundation, although the whole bee-keeping fraternity seems to be against him. Prof. Cook has often said that, when science is at variance with practice and experience, we should reject science and accept practice; but experience says, "No, no!" If we understand the matter, science is not at variance with practice in the case in question. The long-continued heat to which the wax is subjected in the process of clarifying in making foundation is sufficient to sterilize the most resistant germs, as Mr. Newman shows. Mr. Corneil, however, in commenting on this point, thinks we are liable to dip out infected wax that has been put in as a supply, that may have been subjected to a high temperature for only a short time. In reply to this we would say that this contingency is exceedingly improbable. All the wax, before we receive it, is supposed to be sterilized; and the chances that it should be diseased in the first place are not as one to a thousand. Another thing, the fresh supplies of wax are usually put in the night before, and there kept at a temperature of 180 all night. Seldom is wax added during the day to our large melting-vats, unless it be foundation clippings that are already clarified from dirt and impurities, and these clippings are certainly sterilized. The reason we put the wax in at night is to allow the dirt that may be in the cake to settle, and not because we fear the germs of foul brood. Mr. Corneil also thinks that the disease originated in our apiary, not from purchased honey, but from foundation which we had put in the apiary, said foundation having been previously made from infected combs. Friend C. misunderstands us. We never put foundation made from known diseased combs in the apiary until *after* we had had foul brood; so it is improbable that the disease could have originated in the way he suggests, in our apiary. The foundation under discussion was put in another portion of the apiary, in clean hives; and to-day those hives—every one of them—are perfectly healthy.

Mr. Corneil further argues that, inasmuch as the disease starts up in different parts of the country, and for which the source of infection is unknown, therefore the disease might come from foundation. We know of quite a number of apiaries where the foul brood originally started where foundation was unknown. It started in the apiaries of Moses Quinby and G. M. Doolittle before the days of foundation.

Again, foundation is being used more and more, and yet, in the United States at least, foul brood is becoming less and less frequent. If foundation carried infection, the disease would be on the increase; but, on the contrary, it is on the decrease.

THE DEATH OF A BEE-KEEPER AND A HERO—GEORGE H. ASHBY.

A very neat and tasty card has just come to hand, which reads as follows: "In loving remembrance of G. H. Ashby, died Nov. 16, 1891." Mr. Ashby was quite a prominent G. A. R. man, a bee-keeper, and a fun-maker at conventions. That his death was rather sudden is evidenced by the fact that he was one among the number who wrote they would be present at the North American at Albany. His name appears among the list of other bee-keepers, as published in our last issue. He was not only a bee-keeper of some note, but he was also a brilliant soldier in the late "irrepressible conflict." He bore in his side a bullet, and the effects of the war showed only too plainly upon his constitution. We all admire acts of bravery, no matter whether we are of the North or of the South; and just at this time it might be proper to give one little incident illustrating his life as a soldier.

While before Vicksburg, under Gen. Grant, he was captain of a company of artillerymen. But before this city was captured the besieged made one desperate attempt to route the Union forces. In this battle, Captain Ashby took a conspicuous part. The enemy were approaching, and it looked as if they were about to carry the day. While his company of men were shelling an advance column, word came to

Ashby that the shells were giving out. He promptly ordered a detail of soldiers to go to the cave where the shells were kept for safety, and bring out more. "But," said they, "the shells are all boxed up, and the screwdriver can not be found." It seems that the covers to the boxes of shells were *screwed* down, for it would never do to pry open or knock off the covers with a hammer, because of the liability of the shells to explode. Captain Ashby at once ordered the lieutenant, with a couple of men, to go and break the boxes open, as the enemy were fast approaching. They flatly refused to go, urging as an excuse that the thing was foolhardy, and that they would never come out of the cave alive. Quick as thought, Ashby ordered the lieutenant to take charge of the men, while he himself proceeded to the cave. He ordered a darkey, who stood near, to hold a candle.

"No, sah, boss; y' doan get dis yeah niggah in dat yer place, if you's gwine ter break open dem boxes wid dat yer pickax."

Captain Ashby would take no parley. At the muzzle of a revolver he bade the colored man obey. He held the candle; but his white teeth chattered with nervous fear like a pair of castanets. Then with pickax Ashby commenced breaking open the covers. As ill luck would have it, the pick struck a screw, and a quantity of sparks flew into an open keg of giant powder near by. The grains were so large that the powder did not ignite; but the colored man nearly swooned, and tried to escape. The revolver was again pointed at him, and again he was made to stand. Although the sparks flew right and left, Ashby, trembling and pale as death himself, continued his perilous work, and the shells were taken out and distributed to the artillerymen; and the result was, the enemy at that quarter were driven back. We believe this incident has never been made public. It was told to the writer on the cars, and he now gladly makes it public. The cool bravery of our departed friend will be applauded on both sides of Mason and Dixon's line.

HOW TO SEND QUEENS SUCCESSFULLY ACROSS THE OCEAN, TO FOREIGN COUNTRIES, AND TO DIFFICULT AND INACCESSIBLE POINTS IN THE UNITED STATES.

Some time ago we gave some instructions on the subject as above. The wonderful success we have been having during the past year, and the inquiries that are coming in from various sources, show that another article is required, covering more in detail some of the points already given as well as the later developments.

To save the reader the trouble of turning to our back numbers, we will repeat that our export Benton cage is 4¾ inches long, 1⅜ deep, and 1⅝ wide. In this block are bored three holes, 1¼ inches deep, through the shallowest way, and near enough together to leave a 1½-inch opening. One end is lined with paraffine. This is done by dipping a small sash-brush into paraffine, and painting the inside of the hole. The compartment on the opposite end is perforated on the two sides and end by 12 brad-awl holes, 4 holes being on a side. To prepare the candy we knead together the finest quality of thick extracted honey, mixed at a temperature of about 160°, with pulverized sugar, till quite a stiff dough is obtained. This should be allowed to stand for two or three days. During hot weather it will become soft and "run." What we mean by candy that will run is, a lump or ball of Good (Scholz) candy, freshly mixed, which, after two or three days, flattens out and becomes soft; i. e., "it runs." We do not find it practicable to mix the dough stiff enough at the first mixing so as not to become soft and daub the bees. Well, when the candy has been standing two or three days, and runs, instead of mixing in more *pulverized* sugar we knead in what is called "confectioners' sugar." This is a grade that is pulverized to a much finer state of division; and although we can stiffen up the dough with more pulverized sugar, unless the confectioners' grade is put in at the second mixing, the bees, as they eat out the candy, will leave fine granules to rattle out all over the cage. The admixture of the confectioners' sugar seems to make the dough a homogeneous mass.

After the second mixing, the candy is allowed to stand for a day or two more, and will then become soft, mealy, and moist, yet sufficiently firm not to run. Before putting the candy into the cages, if the weather is very hot we frequently knead in a little more confectioners' sugar, because we do not want the candy too moist. If it is made just right there is but little difficulty in delivering queens to almost any part of the globe—at least, our experience so far says so. Sometimes, for reasons we can not conjecture, the Good candy, even when made just right, becomes as hard as a brick, and then, of course, the bees will die of starvation.

Having made the candy just right, we fill the cages. If the cage is to go to the opposite side of the globe, we fill a hole and a half with candy. If it has to go only to England, Italy, or some other of the European countries, one hole of candy is sufficient; but when we put in a hole and a half of candy, it will be necessary to put a division in the hole that is half full, so as to prevent the candy from falling down. The division should have a large opening so the bees can readily get through.

The cage is now ready to receive the bees. It is useless to try to send queens a year old across the water, that have borne the labors of egg-laying through the season. Queens should be selected that are not over two months old, that are perfect in every way. There should be from 30 to 35 attendants, from two to three weeks old; that is, they should be young field bees—bees that are old enough to gather honey, but which have not yet borne the toil of gathering nectar. In putting the bees into a cage, select those that have their heads in cells of honey, apparently taking a drink, by the looks of their podded-out abdomens. Thirty-five bees well filled will carry enough supplies to last them quite a little way on the journey. The cover is nailed on with wire nails. This is a strip of section stuff, ⅛ thick, large enough to cover the cage.

For postage, put on anywhere from 95 cts. to a dollars' worth, in stamps of large denomination, when the cage is to be sent to Australia or New Zealand. In sending queens to the Sandwich Islands, only 3 cts. will be necessary; to Italy, 2 cts.; to any point in the United States, 4 cts. After you have put up your bees, take the cage to your postmaster, and let him attach the necessary postage. Be sure to put on the full address given by the customer, and print it in ink in plain Roman letters—don't write it. Sandpaper off the bottom of the cage, and then be careful not to use a fine-pointed pen, and you can make very neat and pretty work. If you are not very good at printing, get some bright boy or girl who is something of an artist in that line.

Now, there may be some who would rather buy these cages than to make them. We will furnish them complete, without candy, paraffined and with paraffine paper, for 10 cts. each; or when candy is included, 15 cts. postpaid. We would advise you to make your own candy, because in that way you get it fresh.

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